

Exhibit A

Part 1

(TimeBase's U.S. Patent No. 6,233,592 B1,
"System for Electronic Publishing")

to

TimeBase's Response to Defendants'
Motion to Exclude Testimony of Dr. Ophir Frieder



US006233592B1

(12) **United States Patent**
Schnelle et al.

(10) **Patent No.:** **US 6,233,592 B1**
(45) **Date of Patent:** **May 15, 2001**

(54) **SYSTEM FOR ELECTRONIC PUBLISHING**

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(73) Assignee: **Time Base Pty Limited**, New South Wales (AU)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/108,999**

(22) Filed: **Jul. 1, 1998**

Related U.S. Application Data

(63) Continuation of application No. PCT/AU98/00050, filed on Jan. 30, 1998.

Foreign Application Priority Data

Jan. 31, 1997 (AU) 04892

(51) **Int. Cl.**⁷ **G06F 17/21**

(52) **U.S. Cl.** **707/513; 345/355**

(58) **Field of Search** **707/513, 203, 707/100, 526; 345/327, 333, 348, 349, 355, 356**

(56) **References Cited**

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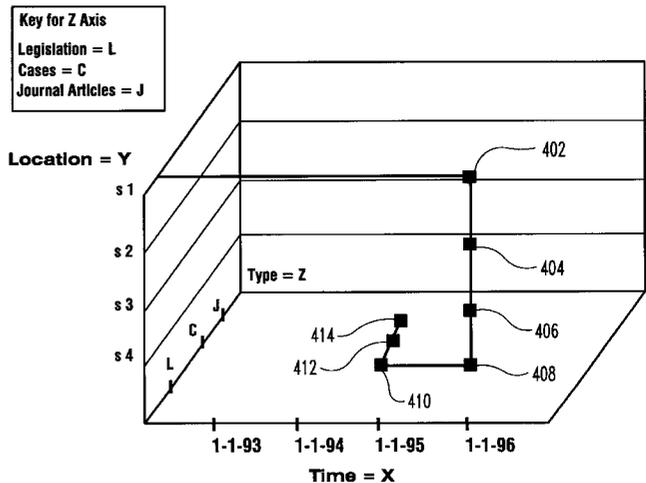
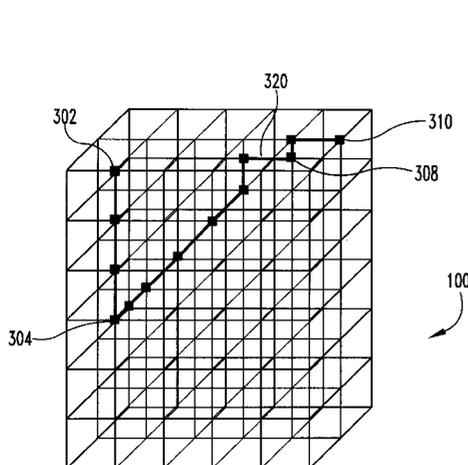
* cited by examiner

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(57) **ABSTRACT**

The present invention relates to a method, apparatus and system for publishing electronic information. The system includes a plurality of predefined portions of data with each predefined portion being encoded with at least one linking means. For each predefined portion, each predefined portion is stored and, where such predefined portion has been modified, each such modified predefined portion is stored. Further, the system has a plurality of attributes. Each attribute is a point on an axis of a multidimensional space for organizing the data. The plurality of predefined portions of the data may be encoded using Standard Generalized Markup Language (SGML) OR XML. Still further, the data is encoded using one or more Document Type Definitions (DTD) or Style Sheet Mechanisms (SSM).

58 Claims, 15 Drawing Sheets



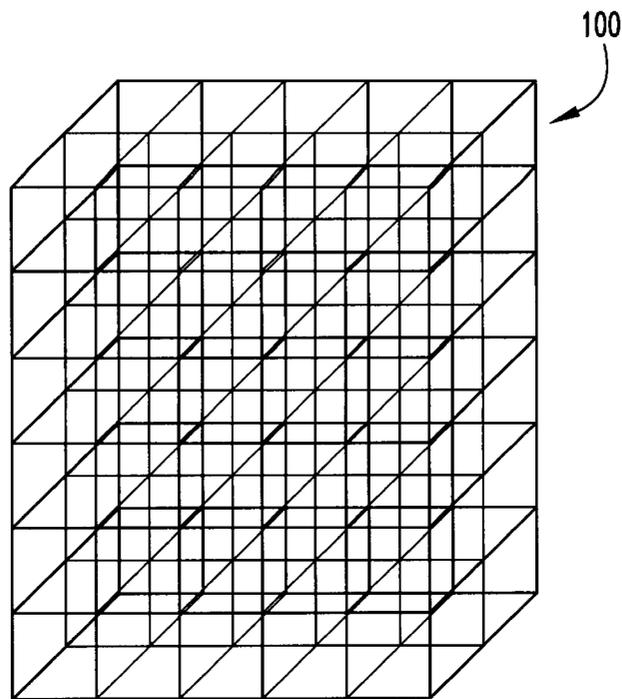


Fig. 1

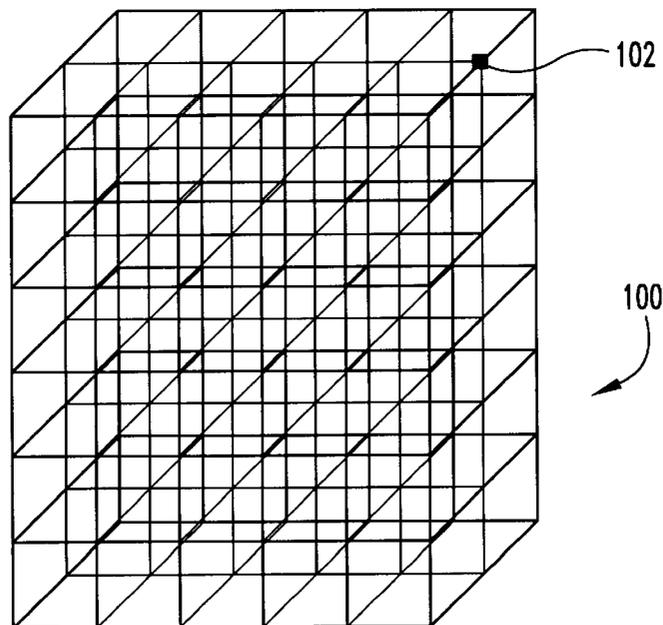


Fig. 2

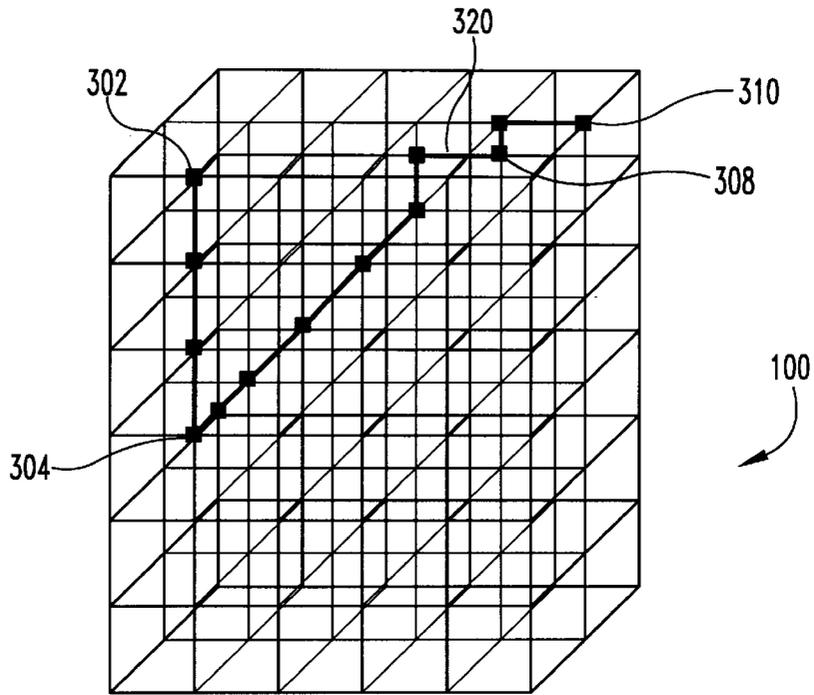


Fig. 3

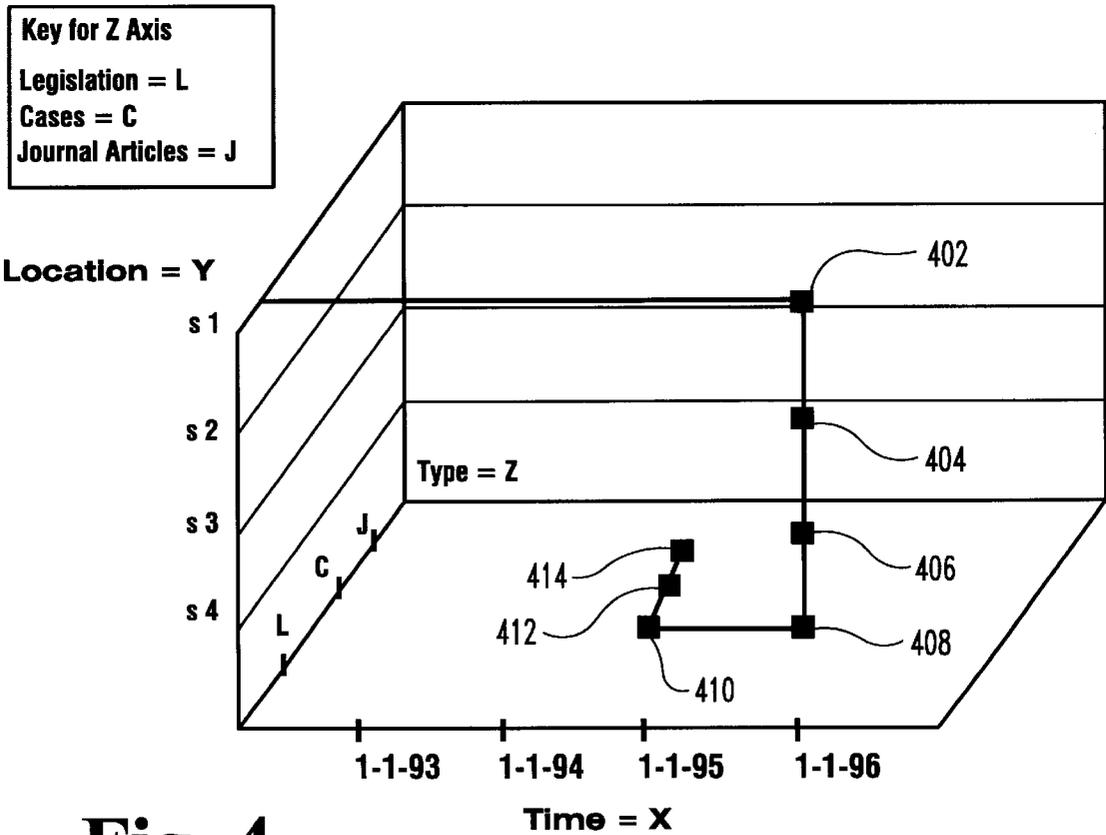


Fig. 4

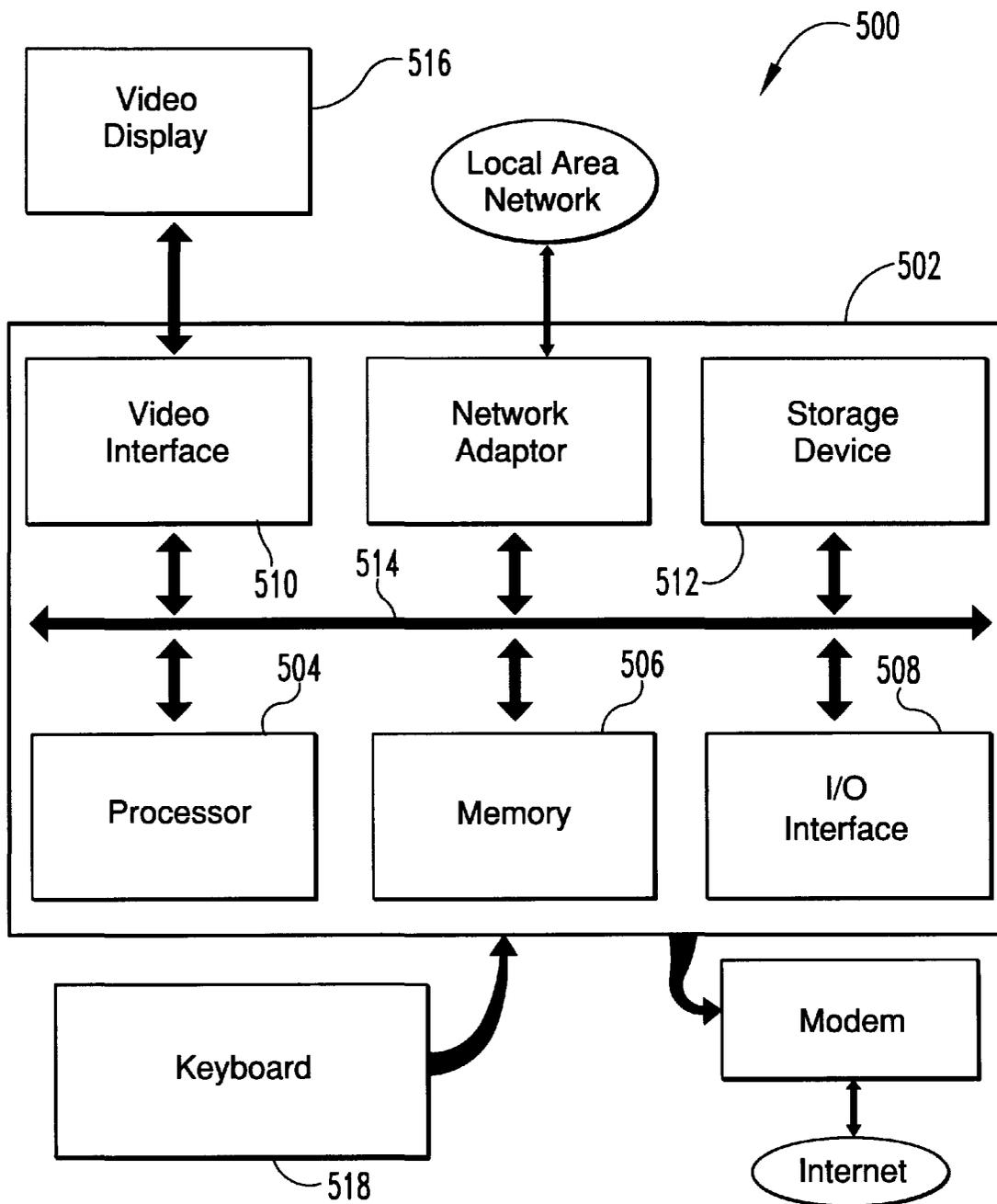


Fig. 5

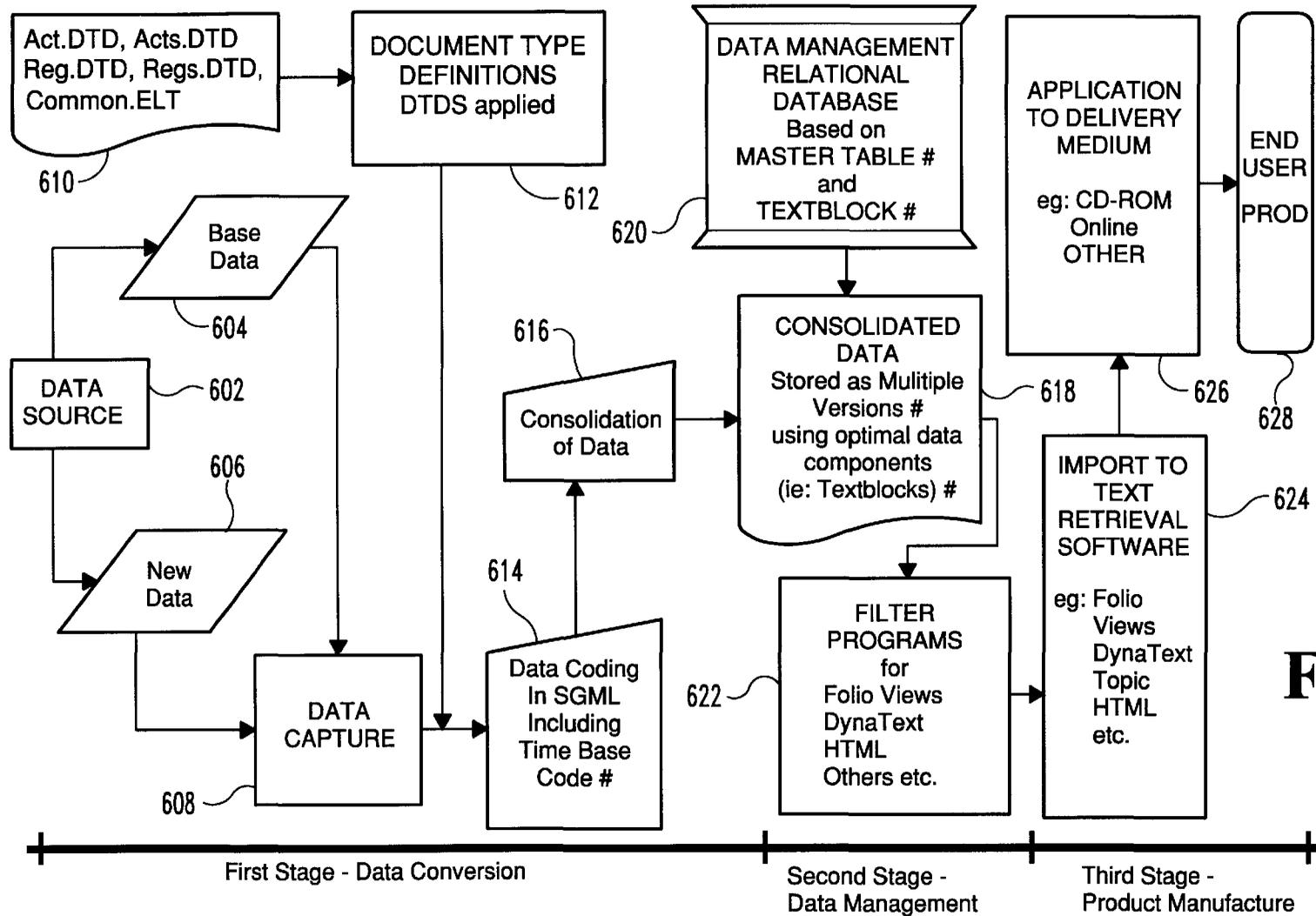


Fig. 6

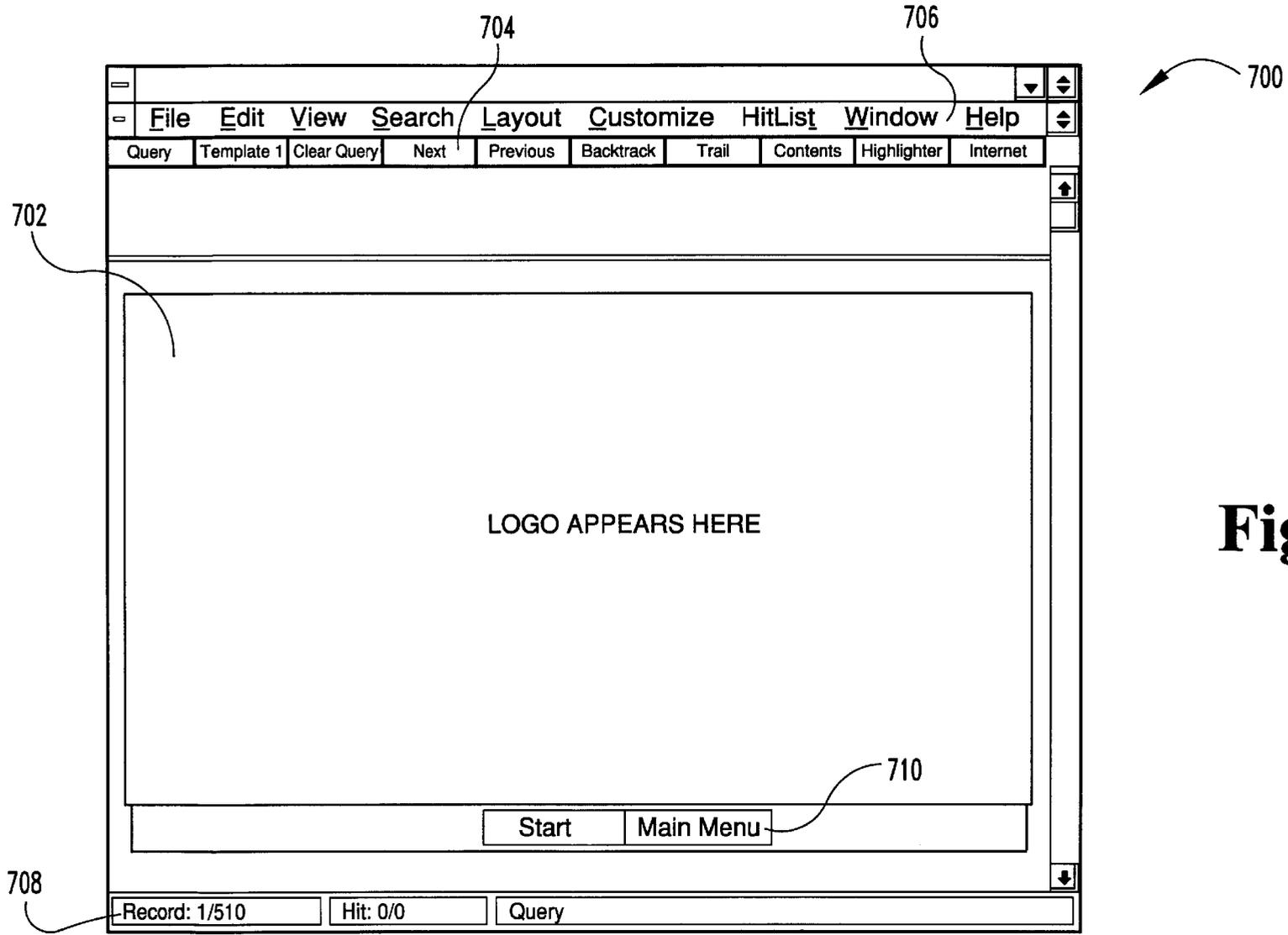
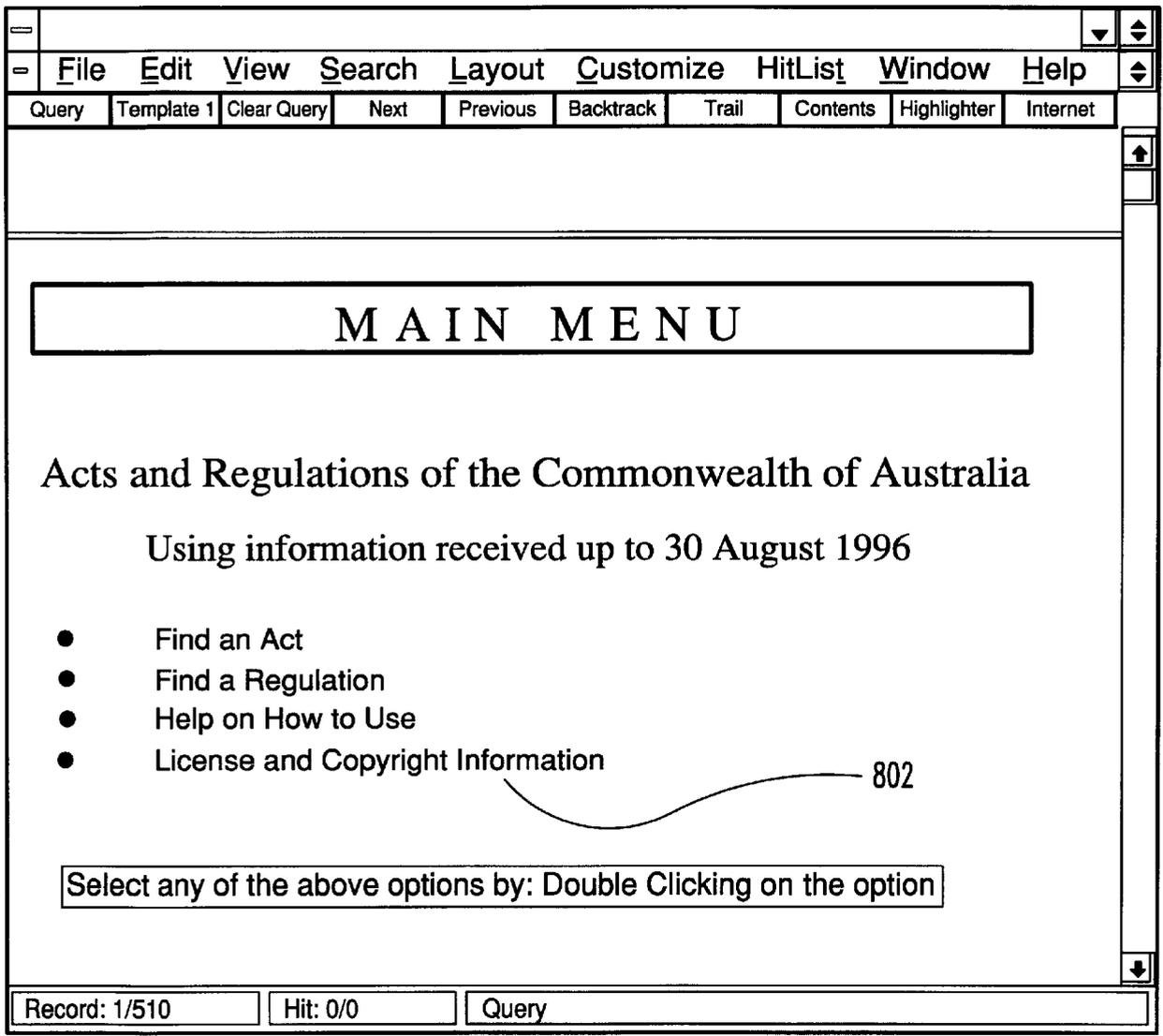
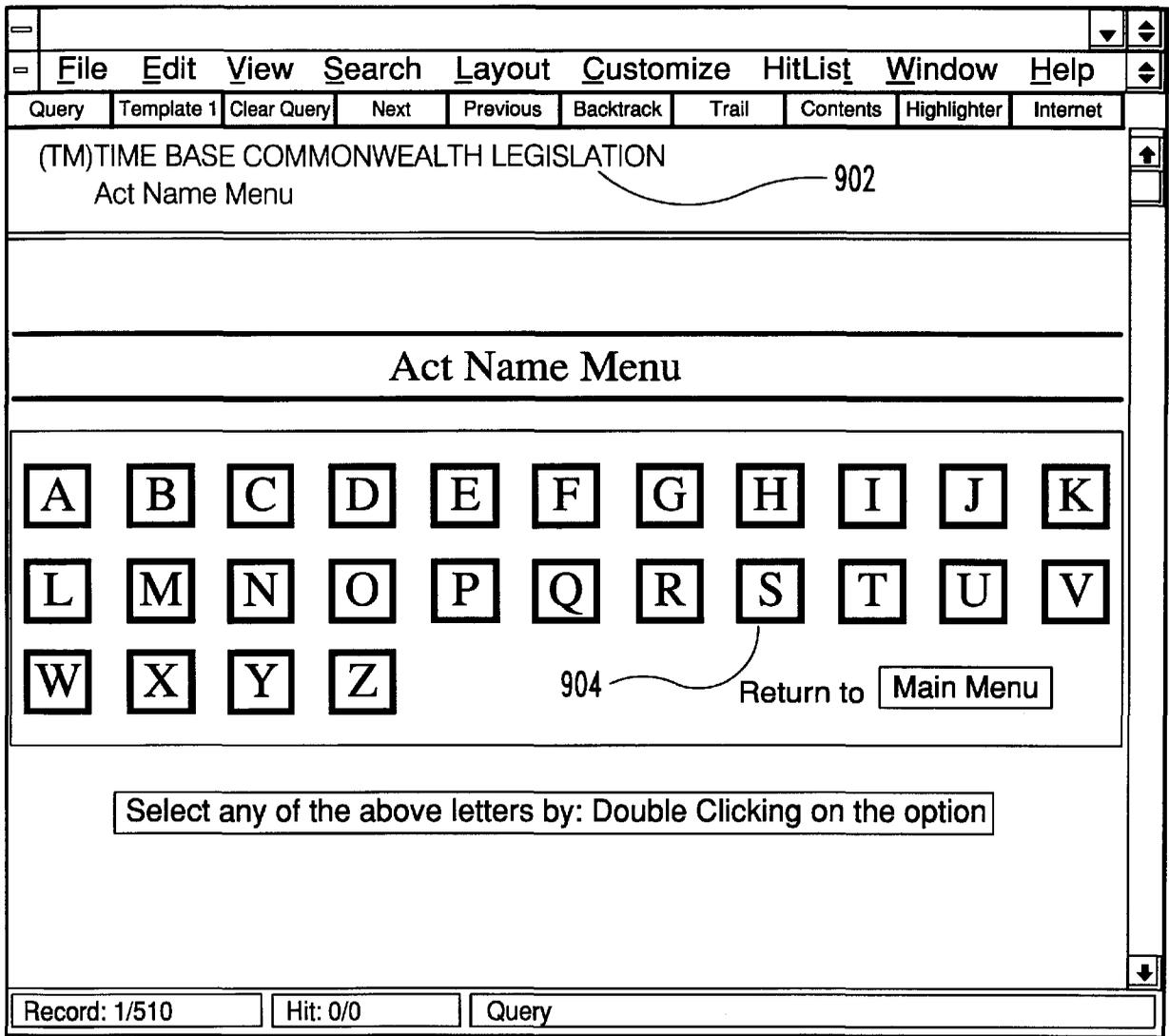


Fig. 7



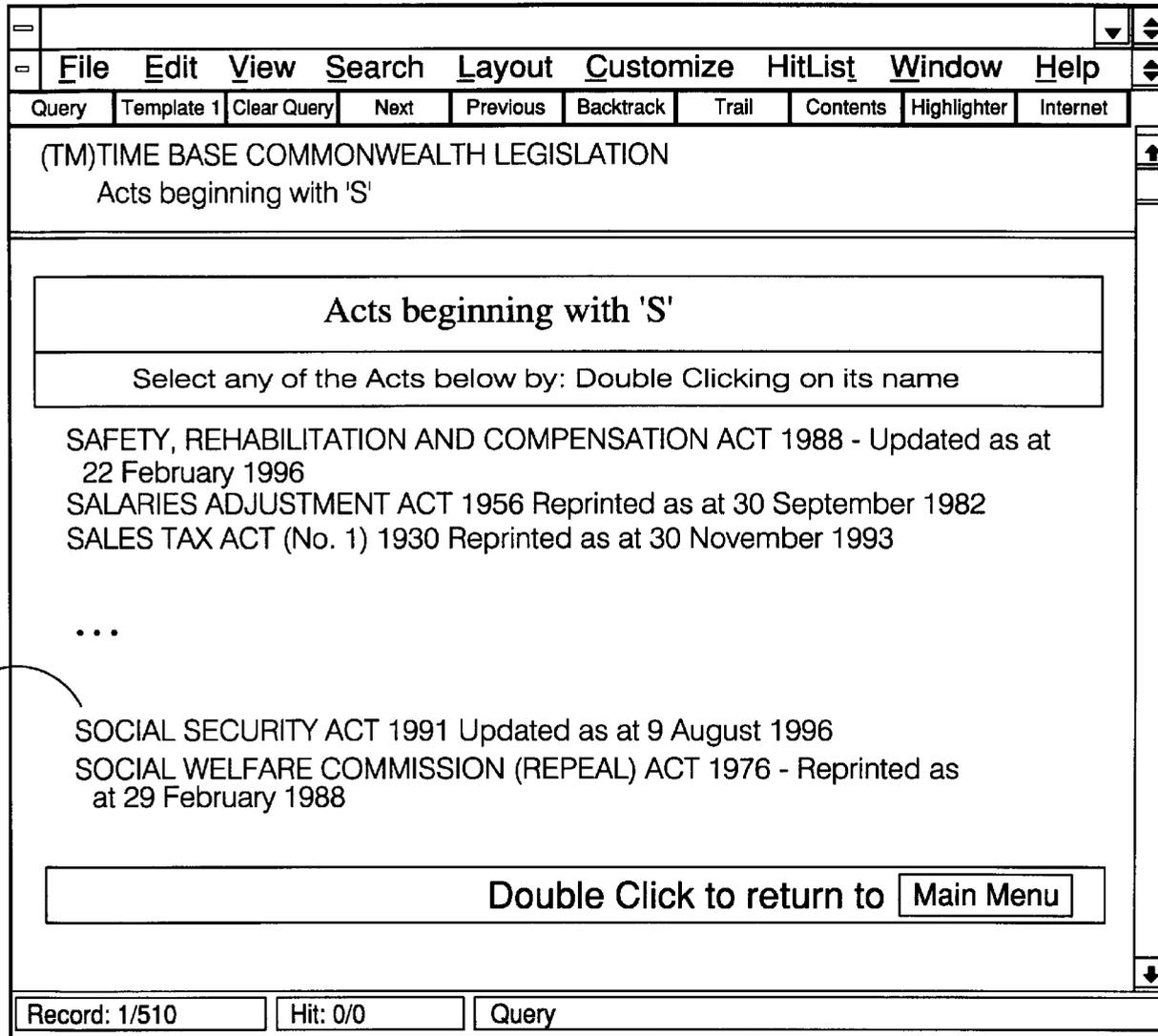
800

Fig. 8



900

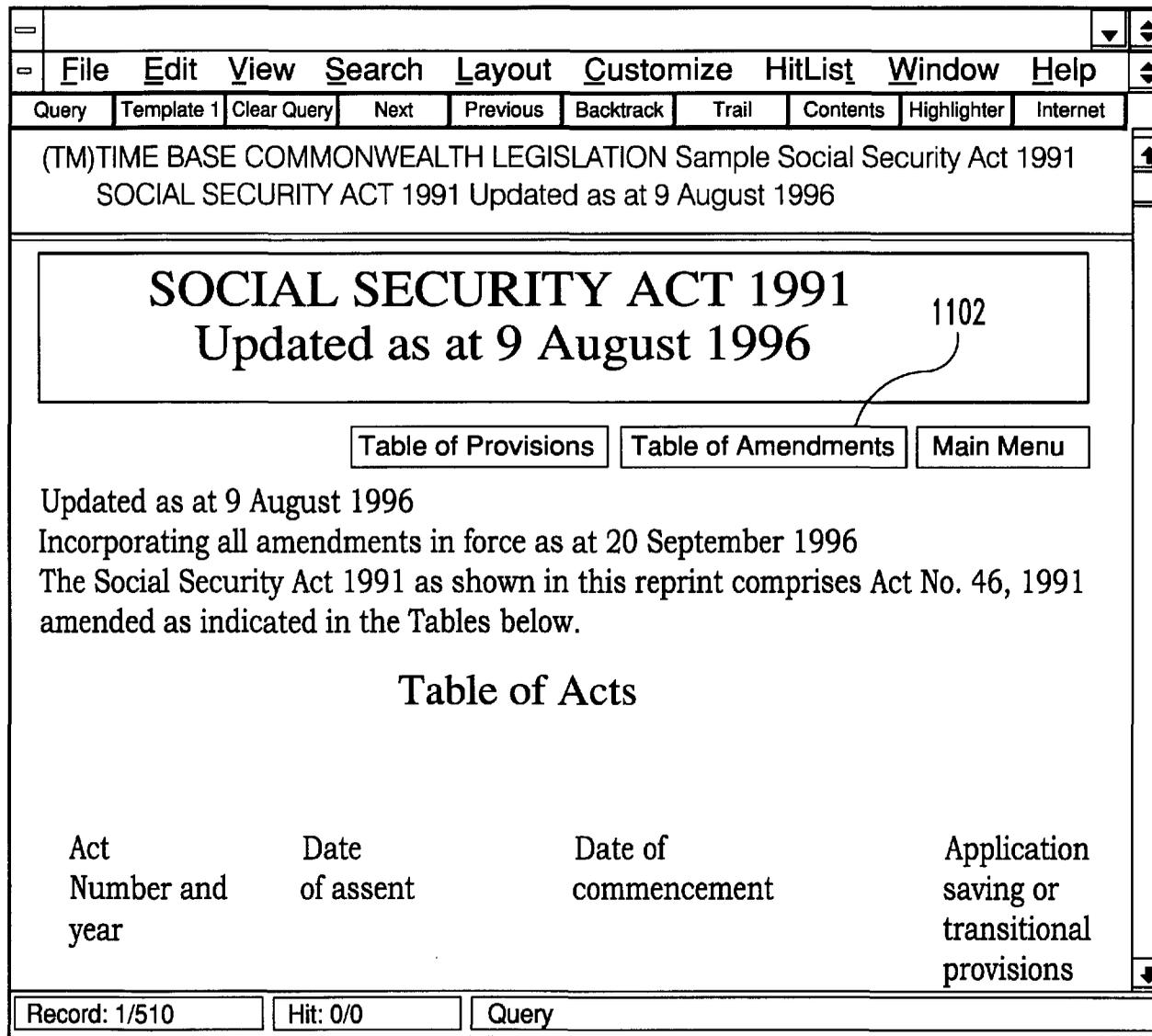
Fig. 9



1000

1002

Fig. 10



1100

1102

Fig. 11

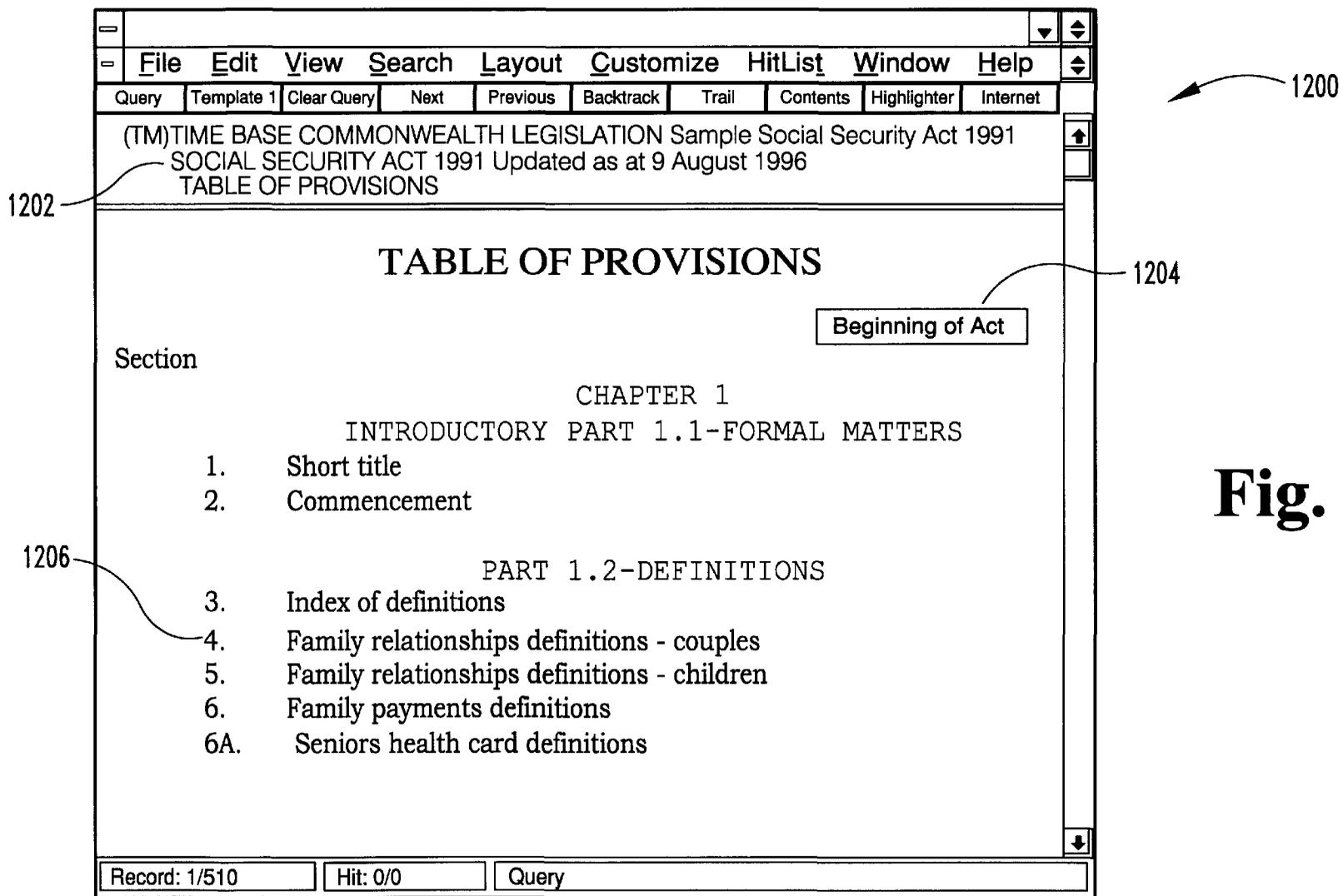


Fig. 12

File Edit View Search Layout Customize HitList Window Help

Query Template 1 Clear Query Next Previous Backtrack Trail Contents Highlighter Internet

(TM)TIME BASE COMMONWEALTH LEGISLATION Sample Social Security Act 1991
 SOCIAL SECURITY ACT 1991 Updated as at 9 August 1996
 TABLE OF PROVISIONS

SECT 4

1302	Time Base		Section Information		1304
	PREVIOUS	NEXT	ALL		1306
	Subject	Jurisdiction	Related INFO		1308

Family relationships definitions - couples

4. (1) In this Act, unless the contrary intention appears

"approved respite care" has the meaning given by any provisions

"armed services widow" means a woman who was a member of the force

(a) a person who was a veteran for the purposes of any provisions of Act; or

(b) a person who was a member of the forces for the purposes of Part

(c) a person who was a member of a peacekeeping force for the immediately before the death of the person;

"armed services widower" means a man who was the partner of

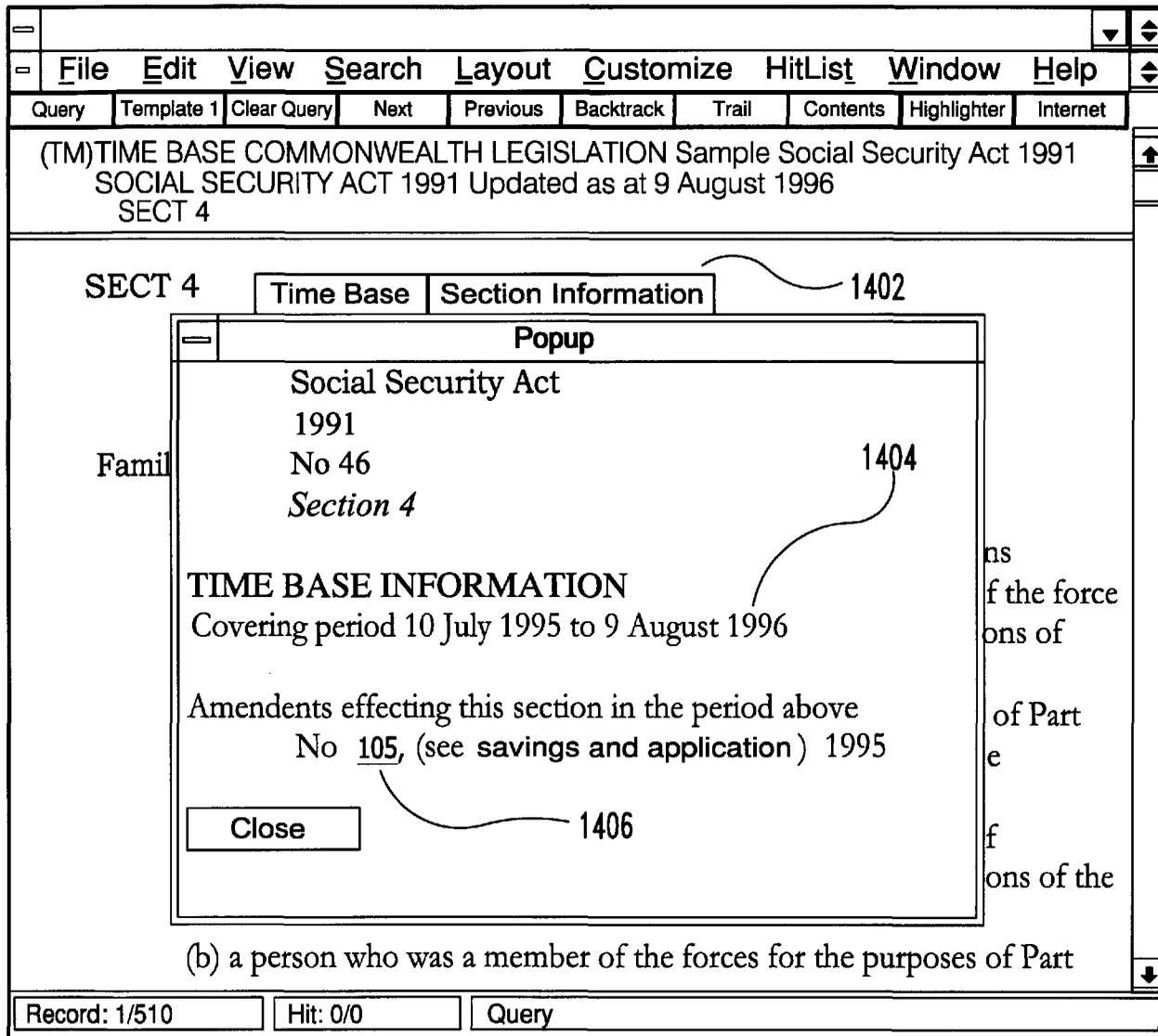
(a) a person who was a veteran for the purposes of any provisions of the Act; or

(b) a person who was a member of the forces for the purposes of Part

Record: 1/510 Hit: 0/0 Query

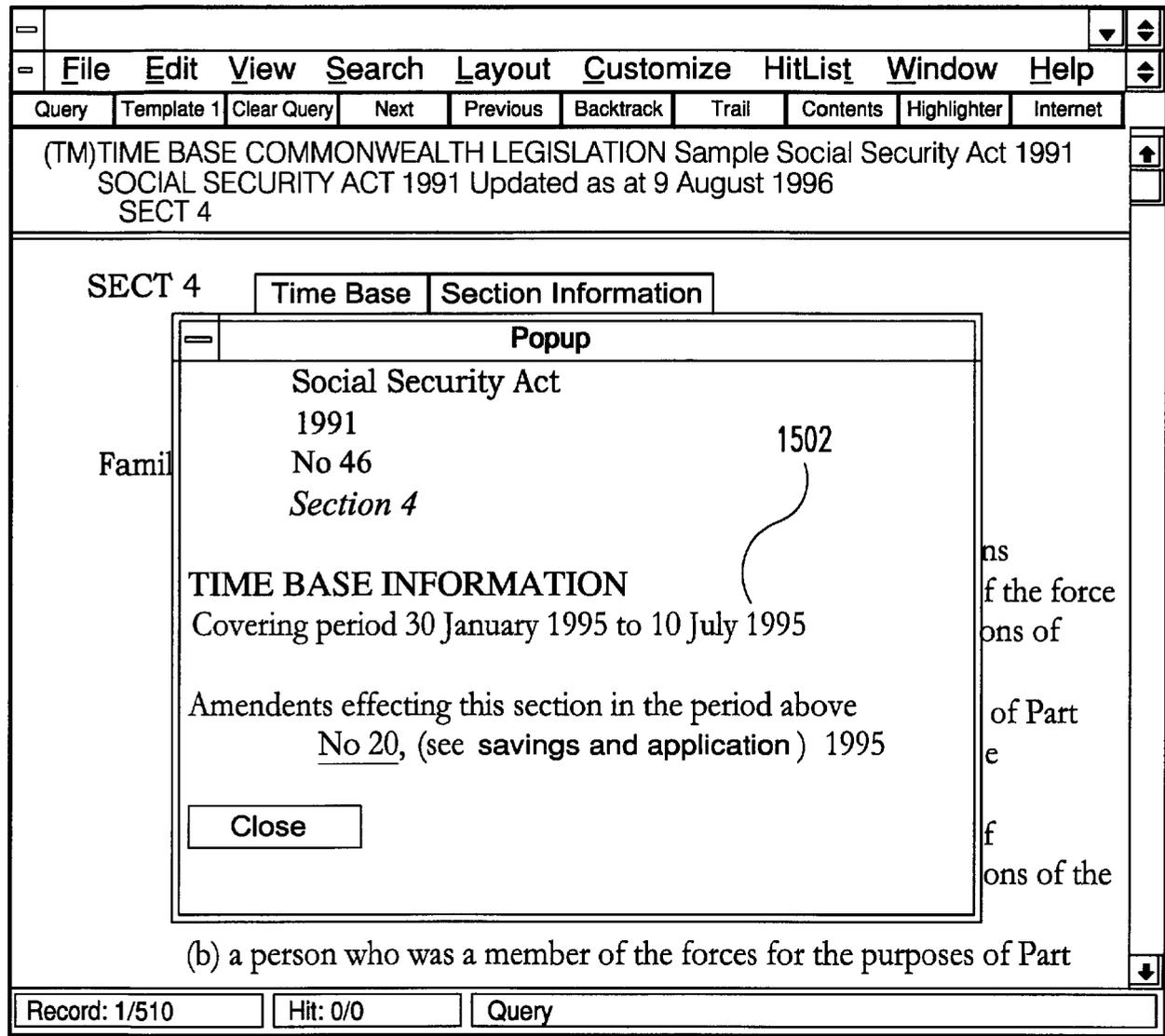
1300

Fig. 13



1400

Fig. 14



1500

Fig. 15

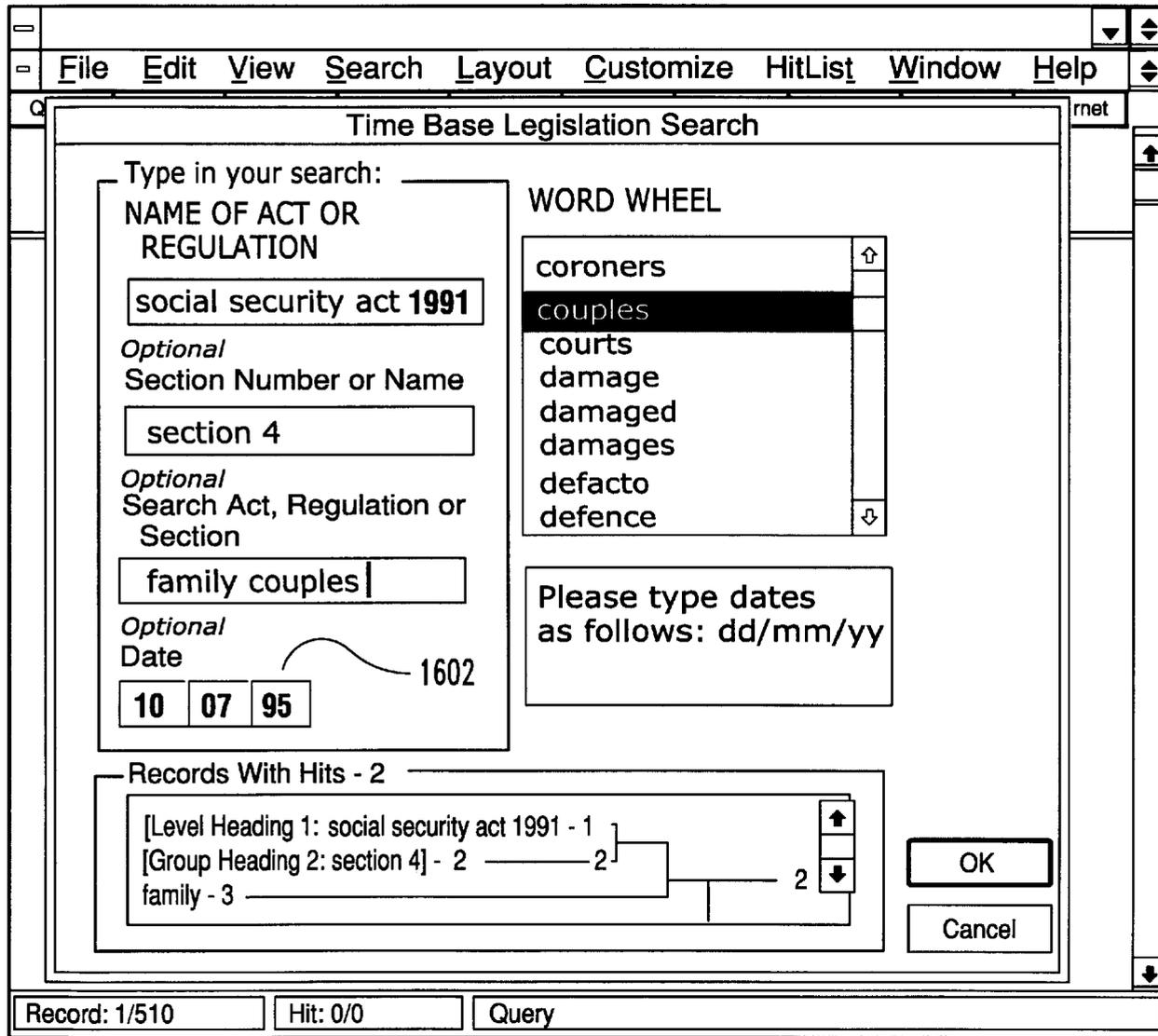
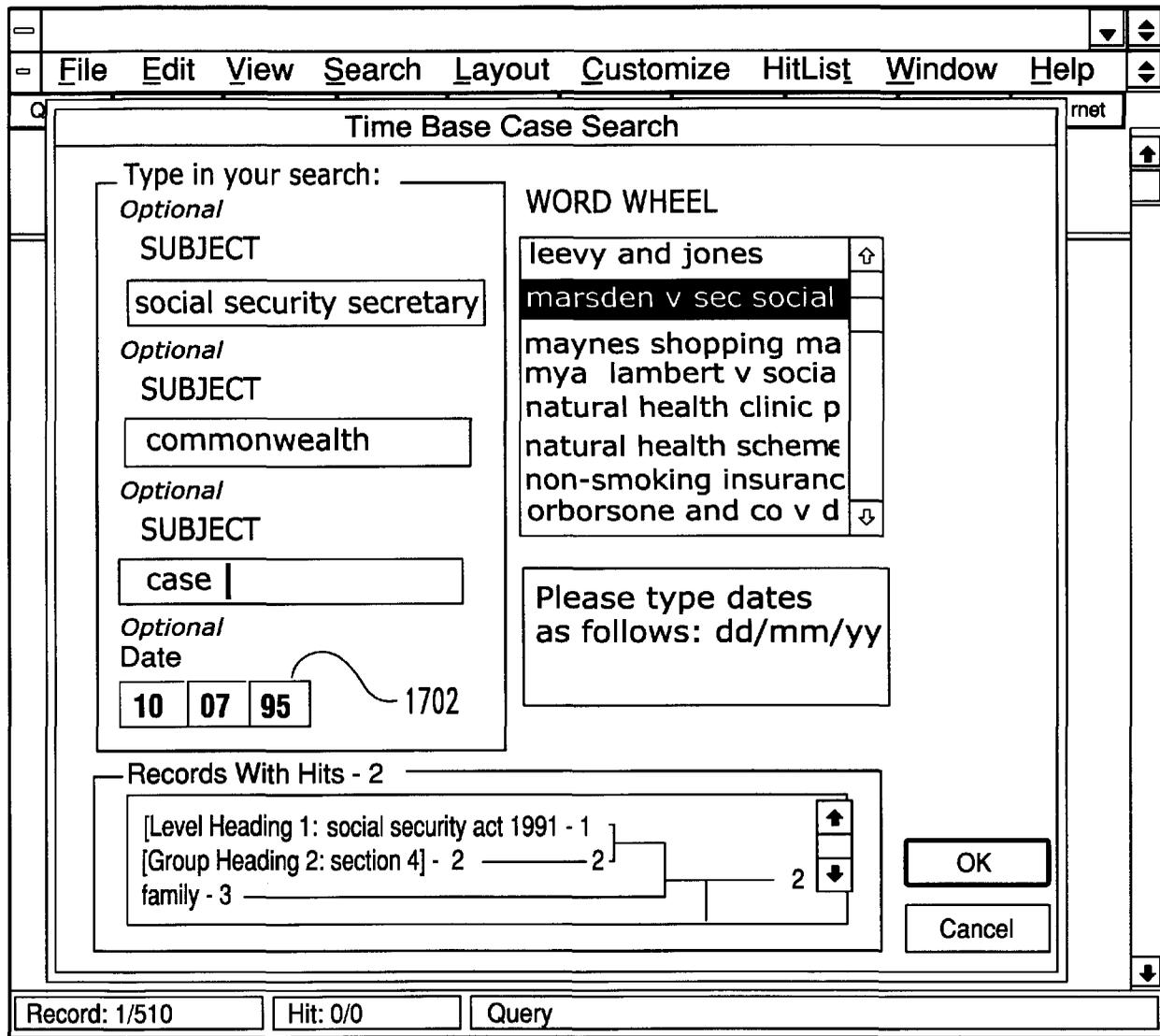


Fig. 16



1700

Fig. 17

SYSTEM FOR ELECTRONIC PUBLISHING**CROSS-REFERENCE TO RELATED APPLICATION**

The present application is a continuation of International Patent Application No. PCT/AU98/00050 filed Jan. 30, 1998 designating the United States of America.

FIELD OF THE INVENTION

The present invention relates to an electronic publishing system, and in particular to an electronic publishing system for the delivery of information which is not limited as to storage space and is not governed by predetermined pathways.

BACKGROUND

Conventionally, information is published in document form as a printed publication, or in electronic form but again using the document or book metaphor. In the past, the concept of a "multidimensional space" in electronic publishing has been intuitively understood (that is, instinctively desired). However, a comprehensive display, discussion or treatment has been rejected by publishers and information providers as too difficult to develop and manage. Instead, publishers and information providers have managed large amounts of data:

- (1) by limiting the size or coverage of the information space; and
- (2) by setting or predetermining the path through that information space.

The effect of this is clearest when the dimension of time is considered. The conventional approach to information storage and publishing is centred on the notion that information is either "current information" (ie, present day) or "historical information" (ie, the day before the present day and all days prior to that). Thus, information is traditionally retained (stored) and/or published (sold) as either current or historical information.

The effect of this has been to leave the end user with a collection of non-integrated repositories and many additional tasks to do before the information is useful to them. For example, the end user is required to:

- (1) make most of their own connections between related pieces of information;
- (2) do their own analysis of the type and subject of information they require or are seeking; and
- (3) find information appropriate to the point in, or period of, time with which they are concerned.

To illustrate the disadvantages of conventional publishing systems, an example of using such conventional techniques and publishing systems to research information is provided. If a person were interested in information regarding the powers of the Secretary under Australian legislation with respect to couples in a family relationship, when and how the Secretary is restricted, and what did the relevant legislation provide prior to that, the person would refer to relevant legal information, which is the Social Security legislation of the Commonwealth of Australia. The relevant provisions are set forth in Table A under the heading "Example Research". This would be determined by the end user's own knowledge of the broad subject and/or reference to secondary material.

The relevant legislative provision is Section 4, which in conventional electronic legal publishing systems might be found by looking for words or phrases such as "family",

"family relationships", and "family relationships" AND "social security", where AND is a logical operator.

Once the above is established, it can be seen from the information found that Section 4 of the Social Security Act, as at 9/8/96, has been amended ten times (see Table A: A1. AMENDMENTS TO SECTION AT 9/8/96.)

There is however nothing in the current Commonwealth Government Reprint, in either the electronic or print versions (see heading EXAMPLE RESEARCH of Table A), that allows the end user to see the text of those amendments or what part(s) of Section 4 were changed by them.

Thus, unless the end user is prepared to refer to many statute books, reading each piece of text against another, the end user is not able to see easily or reliably what section 4 looked like before it was amended by any one of a number of prior amending Acts. However, if the end user has a library complete enough to provide access to the prior amending Acts, the person would eventually determine that Act No 105 of 1995 is the relevant amending Act.

Further, it should be noted that, while the Commonwealth Government Reprint indicates that the Social Security Act was amended by Act No 105 of 1995, it does not indicate what section or schedule in Act No 105 of 1995 actually amended Section 4. This again requires the end user to have access to the amending Acts themselves and renders the information provided by the Reprint as to commencement (see Table A: B. COMMENCEMENT INFORMATION FOR ACT NO 105 OF 1995 CONTAINED IN REPRINT) of little utility without a copy of the amending Act No 105 of 1995 from which it can be established that Section 14 of Act No 105 amended Section 4 of the Social Security Act with respect to powers of the Commissioner (see Table A: D. AMENDING ACT 1995 NO 105 AMENDING SECTION 14).

Eventually, the required information can be found but several pieces of information need to be searched by the end user. This is an arduous, time consuming, tedious and complex task that must be manually repeated for each research topic and if the same search is to be carried out again.

Conventional publishing systems, including electronic publishing systems that typically are speeded-up, paper-based publishing systems, are based on a book-metaphor. The smallest piece of information used by such conventional publishing systems is either (I) an Act or Regulation (in the case of reprints, a whole Act or Regulation is printed again), or (II) a word. Typically, conventional publishing systems choose a word as the smallest piece when legislation is amended. To track such amendments, a lawyer or their assistant may actually use scissors to cut and paste pieces of legislation or the publisher cuts and pastes each word electronically. If a whole Act or Regulation is tracked as in (I) above, it is necessary to store each new version of an Act or Regulation in its entirety.

This has a number of consequences, including:

- a) only a few versions of each Act or Regulation are stored;
- b) the end user rarely searches more than one reprint at a time;
- c) it is very difficult to know which particular section or schedule has changed, to track how that particular section or schedule has changed, to find the relevant section of the Amending Act or Regulation that effected the section or schedule as shown in the reprint;
- d) if multiple changes have occurred on a particular section or schedule between reprints, the latest version of the section or schedule can only be seen in the reprint;

- e) issues like commencement of the latest version of a particular section or schedule and so-called "Application, Saving or Transitional Provisions" are difficult to recreate; and
- f) it is difficult to come to a full understanding of the legislation by means of the reprints.

If every single word is tracked, as in (II) above, a level of complexity results that is difficult to administer and maintain without a large number of errors. For example, some legislative sections and schedules are amended several times annually.

Table 1 provides an example where Section 6 of the Income Tax Assessment Act has been amended 70 times:

TABLE 1

S. 6	am. No. 88, 1936; No. 30, 1939; No. 50, 1942; No. 3, 1944; No. 6, 1946; No. 44, 1948; No. 48, 1950; No. 1, 1953; No. 65, 1957; No. 55, 1958; No. 85, 1959; Nos. 18 and 108, 1969; No. 17, 1961; No. 69, 1963; No. 110, 1964; No. 103, 1965; No. 85, 1967; Nos. 4, 60 and 87, 1968; No. 93, 1969; No. 54, 1971; Nos. 51 and 164, 1973; No. 216, 1973 (as am. by No. 20, 1974); No. 126, 1974; Nos. 80 and 117, 1975; Nos. 50, 143 and 205, 1976; Nos. 87 and 172, 1978; No. 27, 1979; No. 24, 1980; Nos. 108 and 154, 1981; No. 103, 1983; Nos. 47 and 123, 1984; No. 168, 1985; Nos. 41, 48, 52 and 154, 1986; No. 138, 1987; Nos. 73, 97, 105 and 107, 1989; Nos. 20, 35 and 135, 1990; Nos. 4, 5, 100 and 216, 1991; Nos. 80, 98 and 224, 1992; Nos. 17, 18, 57 and 82, 1993; Nos. 138 and 181, 1994; Nos. 5 and 169, 1995
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It is both difficult and impractical to store the complete amendment history of every word and phrase within section 6. Trying to track all changes on such a detailed level leads to unmanageable complexity.

Largely, the split between historical and present information has come about because of the publishing and information industry's own development, and not because such is the desired or best way to manage information. Thus, a need clearly exists for an electronic publishing system that can overcome one or more of the disadvantages of conventional techniques and systems.

SUMMARY OF THE INVENTION

In accordance with a first aspect of the invention, there is provided a system for publishing electronic information, comprising:

- a plurality of predefined portions of data with each predefined portion being encoded with at least one linking means, and, for each predefined portion, the each predefined portion is stored and, where such predefined portion has been modified, each such modified predefined portion is stored; and
- a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organising the data.

In accordance with a second aspect of the invention, there is provided a recording medium for publishing electronic information, comprising:

- a plurality of predefined portions of data with each predefined portion being encoded with at least one linking means, and, for each predefined portion, the each predefined portion is stored and, where such predefined portion has been modified, each such modified predefined portion is stored; and
- a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organising the data.

In accordance with a third aspect of the invention, there is provided a method for publishing electronic information, comprising:

- providing a plurality of predefined portions of data with each predefined portion being encoded with at least one linking means, and, for each predefined portion, the each predefined portion is stored and, where such predefined portion has been modified, each such modified predefined portion is stored; and
- providing a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organising the data.

BRIEF DESCRIPTION OF THE INVENTION

A small number of embodiments of the invention are described with reference to the drawings, in which:

- FIG. 1 illustrates a grid of a multidimensional space according to the first embodiment;
- FIG. 2 illustrates the effect of the various axes;
- FIG. 3 illustrates the mapping of various axis intersection points, or nodes, that is used to organize, present, and find information (present and past) according to the first embodiment;
- FIG. 4 illustrates the application of legal information to mapped nodes according to the first embodiment;

FIG. 5 is a block diagram illustrating a general purpose computer that can be used to implement the electronic publishing system according to the first embodiment;

FIG. 6 is a flow diagram illustrating the method of electronic publishing according to the first embodiment; and

FIGS. 7 to 17 are screen shots illustrating operation of the first embodiment as a software application executing on a general purpose computer.

DETAILED DESCRIPTION

The present invention is directed towards a system of electronic publishing that can overcome the disadvantages of conventional information publishing, both in print and electronic form. The present invention reduces, if not eliminates, end user problems with conventional information publishing including:

- (1) the connectivity between related pieces of information;
- (2) analysis of the type and subject of information; and
- (3) finding information appropriate to the point in time with which they are concerned.

Overview of Embodiments

The embodiments of the invention provide an entirely new way of delivering, storing and publishing information. The embodiments allow publishers to add an arbitrary number of logical connections to a set of data, and even permit the publisher to display the precise evolution of that data set over time. This can be done without getting bogged down in the complexity of the logical connections and without limit as to storage space.

Frequently, people desire to have more "information" available. However, with the advent of the Internet and new technology, many people suffer from information overload. The embodiments of the invention provide an easy and effective way to navigate large complex volumes of information.

Conventionally, information may only contain very rudimentary (i.e., haphazard hyperlinks) or non existent logical

connections. Thus, conventional techniques of investigating how a set of data has evolved and changed over time can only be done for small data sets and are very expensive.

However, with the embodiments of the invention, it is possible to list all logical connections within a data set no matter how complex those connections may be. The embodiments of the invention and the principles of those embodiments described hereinafter can be applied to many different types of information such as medical, scientific, pharmaceutical, etc. For ease of description, however, the embodiments are set forth in relation to legal information.

Conventionally, legislation is often purchased in two ways: (1) The individual Numbered Acts and Regulations that give each piece of legislation as it is passed; and (2) Consolidated legislation that provides the latest consolidated version.

In the embodiments of the invention, legislation is stored using every version of each Act or Regulation. The end user can search every version of any section, schedule, or provision. For example, the required version of a section is immediately available as is the opportunity to view every preceding and subsequent version of the same section. Also, links are available to any relevant amending legislation commencing that change, as well as the one that repealed it. Relevant Application, Saving or Transitional Provisions can also be easily accessed.

In this manner, it is possible to come to a full understanding of the legislation just by looking at the data provided through the embodiments of the invention. In contrast, using conventional techniques, it would have been impossible or very hard, expensive and time consuming to do so.

Using conventional means, a person wishing to view a particular section of a particular Act (e.g., the Income Tax Assessment Act) as of a particular date (e.g., Jun. 30, 1996), a significant amount of work would be required to do so. The end user would need to track all Amendments since the last reprint of the legislation, which may take a long time and involve referring to many volumes. This may even possibly involve using scissors and paste to actually cut and replace words. Even to figure out which Acts amended a particular section and to trace those commencement dates can be difficult, time consuming and trying. However, a piece of research that may have taken an experienced researcher days or even weeks can be accomplished in minutes using the embodiments of the invention.

The ability to move through information in time is outlined above. The embodiments of the invention also give additional flexibility and scope to the end user. Further dimensions and interconnections may include: type, jurisdiction, subject, depth. Some examples are:

1. Doing research on the subject evidence at depth confession for types Acts and Case for time period 12 months.
2. Doing research on type cases within jurisdictions NSW and Queensland subject murder and depth statutes dealing with subject.

The ability to associate the relevance and interconnection contained within the information is highly advantageous to the end user.

A key aspect of the embodiments of the invention in successfully providing a multi-dimensional repository of information has been in deciding the "optimum storage unit". In the past publishers have chosen to either store new versions of the entire Act (too big) or new versions of each and every change, in a method similar to red lining (too complex). The first aspect of the invention was to analysis

the data and choose to store every version of every section or provision level of legislation.

Structured Generalised Markup Language (SGML) is a recognised way to mark up data. SGML allows logical structure to be added to a document (unlike HTML and word processors which only allow the addition of visual content). SGML alone is not enough to deal with text-based data that contains a highly complex logical structure. The complexity increases exponentially until the complexity cannot be managed any more. Large legal publishers have stored their data in SGML, but those legal publishers that are successful in dealing with their SGML-based data have purposely kept their markup as simple as possible. When such publishers have tried to encode a complex structure on text-based data their costs of creating the data set and maintaining the data set simply went through the roof, and it became impossible to maintain the integrity of the data set.

In contrast, the embodiments of the invention allow SGML data to be encoded with a much more complex structure whilst remaining manageable. Alternatively, Extensible Markup Language (XML) may be used. For example, with SGML it is possible to encode all 71 versions of Section 6 of the Australian Federal Income Tax Assessment Act in a single file (that Act has about 6,000 sections) but this would be utterly unmanageable when applied to the 6,000 other sections of the Income Tax Assessment Act. It becomes even more unmanageable if anybody would try to use the above method on all the sections within all other Acts and Regulations of the Commonwealth. A significant problem with using SGML, even well executed SGML, is that it is possible to quickly get bogged down in unmanageable levels of complexity. The embodiments of the invention have overcome these problems.

Another key aspect of the invention is the use of database technologies in the management of the SGML encoded techniques. Database technology provides a large number of ready tools to deal with complex structured data. The embodiments combine these technologies (SGML, XML and database technologies) in an advantageous manner.

In the past, traditional publishers have been limited by the size and speed of available storage systems. Only a limited amount can be reproduced in paper and until recently hard disk costs prohibited the storing of multiple gigabytes of data, for both publishers and clients alike.

The embodiments of the invention have the ability to look at situations from a new and up-to-date view point and therefore come up with innovative conclusions that can be radically different to processes employed in the past.

Thus, the embodiments of the invention provide a new computer publishing system that changes the availability of electronic information from being merely "speeded up paper" to being electronic information taking advantage of new electronic media by providing users with enhanced functionality of data retrieval and manipulation. The information included in the electronic format is of a publishable standard, meets cost constraints and is able to be accessed under any combination of dimensions from the multi-dimensional space (Acts, cases, time, jurisdiction, subject). The publishing system facilitates continual updates to the data contained in the databases, without any adverse effects on the operating capabilities that make the publishing system unique. Due to the extra functionality, the publishing system is also designed in such a way that it can still be made available in as many different electronic media as possible, and all search functions are able to operate in a time-efficient manner.

The embodiments of the invention organize, process and present information in a way that is significantly different

than conventional structures, processes and presentation. They provide an information storage and publishing system, and in particular, an information storage and publishing system that stores and manages large and comprehensive amounts of information (eg, legal information).

Publication data, being preferably legal information, is encoded using Standard Generalized Markup Language (SGML) or Extensible Markup Language (XML) which adds codes to the publication data and provides functionality to the data. The publication data is processed as a plurality of predefined portions, which in the case of legislation is preferably at the section, schedule level, or provision level. A hierarchy of divisions of the legislation may be implemented. For each of the predefined portions, the system stores a copy of the predefined portion and a modified predefined portion in the first database whenever it is changed. A second (relational) database is preferably provided that comprises plural attributes for managing the information of the first database, with each attribute being a point on an axis of a multidimensional space for organising the data for publication. Alternatively, a single repository of information may be practised as described with reference to the second embodiment.

The system enables the first database to be searched for one of the predefined portions of the publication data using attributes of the second database by following one or more pathways through the multidimensional space. The plurality of attributes are connected to by the plurality of links. Once the desired predefined portion is located, the predefined portions can be retrieved using the attributes to define a point in the multidimensional space.

Preferably, the system implements, inter alia, time-based legislation in which sections of legislation that have been amended are not discarded and replaced with the current provision only as of the publication date. Instead, each version of an amended section is retained in the first database. Thus, the systems according to the embodiments of the invention are particularly advantageous in that legal information is published so that a user can obtain such sections or provisions at a particular time point.

The embodiments advantageously divide information into "suitably" small pieces (or blocks) of text, each of which is a predefined portion of data, and add to each piece of text, either expressly or implicitly, a number of attributes (characteristics or descriptors). The suitability as to size of text pieces is determined by an analysis of the information and its naturally occurring structure based on knowledge of how the information is used and consumed by the end user.

This makes it possible to locate each piece or block of text at a particular point in a "multidimensional space" using as coordinates the attributes added to the piece or block of text. Multidimensional space refers to an area not having boundaries and that is capable of, or involves, more than three dimensions.

FIG. 1 illustrates a multi-dimensional space **100** as used in embodiments of the invention. The multidimensional space is represented by a layered grid. The diagram represents axes or pathways as vertical and horizontal lines; in reality (in the case of more than two dimensions), they are at all angles and inclines.

Referring to FIG. 2, the ability to locate (assign) or map each node **102** (or key intersection point of the various axes or pathways) is a significant functional aspect of the embodiments of the invention. This mapping is explained further hereinafter. With such coordinates **102** known (located or mapped), it is possible to move easily between points in the multidimensional space **100**.

The effect of mapping nodes as shown in FIG. 3 is that a course **320** through the information represented in the three-dimensional space **100** can be easily plotted. The user begins the course **320** at node **302** and progresses vertically downward to the fourth node **304**. Further, the plotted course **320** is flexible to the extent of the relationships a user chooses to follow or seek out.

First Embodiment

A first embodiment of the invention provides information management in the multidimensional space and allows movement along different axes or "pathways":

- location of the information (its address);
- type of information (its genesis);
- jurisdiction (its class);
- subject (its content description);
- depth (extent of content); and
- time (the point in time at which the information is viewed).

In the first embodiment, coding of information or data for publication is based on SGML or XML and one or more specifically developed Document Type Definitions (DTD), which preferably is specifically designed for legal information. Alternatively, in the case of XML, a Style Sheet Mechanism (SSM) may be used. This coding can then be related back to information retained in a specifically developed database that enables the code information to be managed and updated. For a detailed description of this aspect of the invention, reference is made to Table C. The DTDs according to the first embodiment are set forth in detail in Table B. A DTD is used to define the structure of publication data, preferably being legislation, down to a comprehensive level. This is done by using information coded in conjunction with any one of a number of off-the-shelf, free-text retrieval software packages (eg, Folio Views or Dynatext) to deliver the information to the end user.

A DTD describes the markup for the SGML publication data, or "repository", which may contain legislation, case law, journal articles and other types of material that are stored in computer files. The files contain publication data in text form and the markup, which is extra information about the text included with the text. An example of a markup is '<BD+>' which indicates that "the data from this point on is bold". A further example is '<SECTION ID="CWACT-19950104-SEC-1" LBL="1">'. This markup indicates that: the data from this point on is part of a section of legislation; the section has an identifier of CWACT-19950104-SEC-1; and the section has a label of "1".

There are a number of different ways to add markup to data. The first embodiment adds markup to data using SGML. Alternatively, XML may be used. Still further, in the case of XML being used, an SSM may be used. Even within SGML, there are many ways to add markup to text. Each particular way of adding markup within SGML is described by using a DTD. In the first embodiment, the data for publication is marked up using a number of different DTDs. In particular, the DTDs are used to mark up the logical structure of the legislation, case law or journal articles. Significant amounts of information about the data for publication is stored in the markup. For example, the markup '<SECTION ID="CWACT-19950104-SEC-1" LBL="1">' provides the following information: the data is a piece of Commonwealth of Australia legislation (indicated by 'CW' at the beginning of the string); the section is part of an Act ('ACT' after 'CW') and not a regulation; the act is Act No. 104 of 1995 ('19950104' in the middle of the string), the

data is a Section ('SEC') within the Act; and it is Section 1 ('1' at the end).

The preparation of such DTDs necessitates that the author has a sound knowledge of the data that will be marked up using the DTD. It is especially important that the underlying structure of the data to be marked up using the DTD be understood. The process of becoming acquainted with the structure of the data to be marked up is referred to hereinafter as "content analysis".

In particular, the section-level or schedule-level portion of legislation is used in the first embodiment. That is, the section-level portion is preferably the predefined portion of the publication data, which is the smallest piece of information to be tracked. This is unlike conventional publishing systems. For example, with reference to Table 1, the first embodiment stores every version of Section 6. In this manner, complexity (tracking every word) is reduced by increasing storage. However, unlike example (I) of conventional publishing systems, the first embodiment does not lose any pertinent information:

- a) every version of each Act or Regulation is stored;
- b) the end user can search every version of any section or schedule at the same time;
- c) it is easy to know which particular section or schedule has changed, to track how that particular section or schedule has changed, and to find the relevant section of the Amending Act or Regulation that affected the section or schedule;
- d) if multiple changes have occurred on a particular section or schedule, every version of the section or schedule can be seen;
- e) issues like commencement of the latest version of a particular section or schedule and so-called "Application, Saving or Transitional Provisions" can easily be recreated;
- f) it is possible to come to a full understanding of the legislation just by looking at the data provided through the first embodiment.

A further advantage of tracking every version of each section or schedule is that it is possible to store some of the information, not in the markup, but in a database, as noted hereinbefore. This simplifies the updating process.

While SGML is a powerful way of storing information, it is not a retrieval medium. Therefore, the stored information needs to be converted into a format that the end user of the information can access. The first embodiment uses an electronic format for retrieval. For this electronic retrieval, a software application called 'high-end text retrieval software' is used. Examples of high-end, text-retrieval software applications include Folio Views and Dynatext. In the first embodiment, Folio Views is used.

Folio Views has its own proprietary markup language, which is not part of the SGML family. A complete guide to the Folio Views markup language is provided in the text *Folio Views Infobase Production Kit Utilities Manual*, Version 3.1, Provo, Utah: Folio Corporation (Jun. 1, 1994). Storing the data for publication in SGML allows other retrieval software applications besides Folio Views to be used.

In the first embodiment, a process is implemented to convert the SGML marked-up data into the format used by the retrieval software application. The example given for Folio Views hereinafter is but one example of the process involved. The conversion program basically maps the SGML markup to Folio Views markup. For example, for the SGML markup '<SECTION ID="CWACT-19950104-SEC-

1" LBL="1">', the conversion process marks all ID's substantively unchanged as Jump Destinations (JD's): '<JD="CWACT-19950104-SEC-1">'.

A Keying Guide for Australian Legislation Documents with instructions for the conversion process to Folio Views added is provided in Table D.

Movement through legal information can be as follows (the flexibility and scope is largely up to the end user):

- (1) doing research on the subject of fences and boundaries at the depth fences that are hedges looking for types Acts and Regulations in jurisdictions NSW and Victoria for the time period last 20 years;
- (2) doing research on the subject evidence at depth confession for types Acts and cases for time period last 12 months; or
- (3) doing research on type cases with jurisdictions NSW and Queensland, subject murder and depth statutes dealing with subject.

The application of legal information to mapped nodes is shown in FIG. 4. However, this is only one of numerous possible applications. Information from medical, technical and scientific areas are all open to the application of this invention. This diagram substitutes the technical terminology of FIG. 3 with legal terms to show the way information appears according to the first embodiment. Further, FIG. 4 provides an example of how legal information is navigated by an end user. The user may be seeking information on the following matters:

- (1) Does NSW legislation on fences presently cover hedge rows between the boundary of a private property and a public road?
- (2) If not, have such hedge rows ever come under NSW legislation?
- (3) Are there any cases under current law or previous law?
- (4) How have the cases been interpreted?

Some general assumptions are made about legal information for the purposes of this example. Broadly, legal information has two main primary sources: statute law (including subordinate legislation), and case law. There is also secondary information such as commentary which can be added to aid interpretation. Each of these sources is interconnected and relevant to the other in terms of both past and present information. This may also apply to future information in terms of bills or other forms of uncommenced legislation. It is the association of this relevance and interconnection that is advantageous to the end user.

In FIG. 4, the X-, Y-, and Z-axis indicate time (Time), the legislative provision (location), and type (eg, legislation=L, cases=C, and journal articles=J). To simplify the diagram, only three axes are illustrated, however, other axes may be included dependent upon the number of dimensions of the space. In the first embodiment, the multidimensional space also includes another three axes: jurisdiction=U, subject=V, and depth=W. Thus, the space according to the first embodiment has six dimensions. In the six-dimensional case, it is possible to move along each axis and at the points of intersection change direction, as well as find and/or follow new or additional information.

The end user begins at legislation (L) along the Z-axis, where the Fences and Boundaries Act is located and then selects Section 1 of legislation (indicated by L allowing the Z-axis) at node 402, as of Jan. 1, 1996. The user then follows a path in the legislation through nodes 404, 406 and 408 for Sections 2, 3 and 4, respectively, as of that same date (ie, the Y-axis), to find a definition of the term "fences". Node 408 contains Section 4 at Jan. 1, 1996 which contains the current

definition of "fences". This would provide information in response to above query (1).

The user then selects Section 4 of the legislation as of Jan. 1, 1995, which in this case is an earlier version of the section prior to amendment, by moving to node **410** (along the X-axis). This provides information about the prior law for above query (2). The user can then move to other information on Section 4 as of Jan. 1, 1995 by going to nodes **412** and **414** for case and journal article information, respectively, along the Z-axis. For example, a case on the earlier Section 4 might be identified at node **412** and articles on interpretation of Section 4 at node **414**. The foregoing is only one possible route through the multidimensional space of information. Other more complicated and interrelated pathways involving axes U, V and W are possible. For example, the user can move to axis U (jurisdiction) and compare the definition in Section 4 of New South Wales with that in another jurisdiction (eg, Victoria).

FIG. 6 is a flow diagram illustrating the method of electronic publishing according to the first embodiment. A data source **602**, preferably for legal information, is provided. In steps **604** and **606**, base data and new data are input from the data source **602**, respectively, and in step **608** the data is captured. The DTDs **610** are input to step **612**. The DTDs **610** include Act.DTD, Acts.DTD, Reg.DTD, Regs.DTD, and Common.ELT, which are shown in detail in Table B. In step **612**, the DTDs **610** are applied to the captured data from step **608**. In step **614**, the data is coded in SGML, including the Time Base Code. In step **616**, the data is consolidated. As indicated in FIG. 6, steps/items **602** to **616** comprise the (first) data conversion stage.

A data management database **620** is provided to step **618**. The database is based on a master table and a textblock table (see Table C for further detail). The output of step **616** is also provided to step **618**. In step **618**, the data is consolidated; the data is stored as multiple versions, if applicable, and uses the predefined portions of data (ie, textblocks). In step **622**, a filter program(s) is applied to the consolidated data to convert the data from SGML to the relevant format for the retrieval software application, including Folio Views, DynaText, Topic, HTML, and the like. Steps/item **618** to **622** comprise the (second) data management stage.

The filtered data output by step **622** can then be provided to step **624**. In step **624**, the filter consolidated data is imported to the text retrieval software. In step **626**, the data is provided to the delivery medium, which may include CD-ROM, DVD, magnetic tape, electronic online services, and other media. The output of this is the end user product **628**. Steps/item **624** to **628** comprise the (third) product manufacture stage.

The first embodiment is preferably practiced using a conventional general-purpose computer, such as the one shown in FIG. 5, wherein processes for providing and managing the information are carried out using software executing on the computer. In particular, the legislation database, the database and the DTD(s) may be stored after a filtering process on a CD-ROM used by the computer system, and the computer system is operated using Folio View. The computer system **500** includes a computer **502**, a video display **516**, and input devices **518**. A number of output devices, including line printers, laser printers, plotters, and other reproduction devices, can be connected to the computer **502**. Further, the computer system **500** can be connected to one or more other computers using an appropriate communication channel such as a modem communications path, a computer network, or the like.

The computer **502** consists of a central processing unit **504** (simply, processor hereinafter), an input/output inter-

face **508**, a video interface **510**, a memory **506** which can include random access memory (RAM) and read-only memory (ROM), and one or more storage devices generally represented by a block **512** in FIG. 5. The storage device(s) **512** can consist of one or more of the following: a floppy disc, a hard disc drive, a magneto-optical disc drive, CD-ROM or any other of a number of non-volatile storage devices well known to those skilled in the art. Each of the components **504** to **512** is typically connected to one or more of the other devices via a bus **514** that in turn can consist of data, address, and control buses.

The video interface **510** is connected to the video display **516** and provides video signals from the computer **502** for display on the video display **516**. User input to operate the computer **502** can be provided by one or more input devices. For example, a operator can use the keyboard **518** and/or a pointing device such as the mouse to provide input to the computer **502**. Exemplary computers on which the embodiment can be practiced include Macintosh personal computers, Sun SparcStations, and IBM-PC/ATs and compatibles.

In an alternate embodiment of the invention, the computer system **500** can be connected in a networked environment by means of an appropriate communications channel. For example, a local area network could be accessed by means of an appropriate network adaptor (not shown) connected to the computer, or the Internet or an Intranet could be accessed by means of a modem connected to the I/O interface or an ISDN card connected to the computer **502** by the bus **514**. In such a networked configuration, the electronic publishing system can be implemented partially on the user's computer **500** and a remote computer (not shown) coupled over the network. The legislation database, the database and the DTD(s) can be implemented on the remote computer and the computer system **500** can be operated using Folio View.

The operation of the first embodiment is described with reference to the screen shots shown in FIGS. 7 to 17. All screen shots are derived from the first embodiment which uses Folio Views as the retrieval software. Broadly, FIGS. 7 to 15 are screen shots illustrating navigation or movement around the information. FIGS. 16 and 17 are screen shots that show search capacities.

FIG. 7 shows the opening screen **700**, which the end user sees when the program is started. The interface is a standard windows interface featuring drop menus that provide access to all functions. The functions include basic searching and customised search templates such as the ones shown in FIGS. 16 and 17 that allow users to exploit time-based and multidimensional searching.

The title screen **702** is presented when the process is commenced and is the first screen. A customisable toolbar **704** is provided for searching functions. Also, drop menus **706** are provided above the toolbar **704**. In the lower portion of the screen **700** contains a status bar **708** showing information relevant to searching. The Start and Main menu buttons **710** in FIG. 7 are both navigational tools. The Start button takes a new user to information providing help on how to use the invention. The Main Menu button takes the end user to the menu shown in the second screen shot of FIG. 8.

FIG. 8 shows a main selection menu **800**. At this menu **800**, the user can see the currency of the total information. The user is also able to make broad choices as to the type of information that the person might like to see. All items preceded by bullet points in the menu are jump links **802** which lead the user to further menus for the items selected. The jump links **802** also provide a uniform or consistent

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form of movement. Thus, if searching the Social Security Act, selecting the first jump link "Find an Act" takes the user to the next screen which would be the "Act Name Menu".

FIG. 9 shows the "Act Name Menu" screen 900. In this menu 900, all letter buttons are links 904 to Acts beginning with the letter selected. That is, the jump links 904 allow access to sub-menus for Acts with the corresponding selected letter. If "S" is clicked, this leads to the "Acts beginning with S" menu (see FIG. 10) where an entry linked to the most current version of the Social Security Act 1991 appears. A similar menu may be provided for Regulations. Further, locational information 902 is provided in the upper portion of the screen 900.

FIG. 10 illustrates acts beginning with "S", as selected in the screen 900 of FIG. 9. By selecting jump link 1002, the Social Security Act can be accessed. Likewise, other acts in this screen 1000 may be accessed using the respective jump link (e.g. Safety, Rehabilitation and Compensation Act).

Assuming the appropriate jump link 1002 is selected in FIG. 10, FIG. 11 shows how the beginning of the Social Security Act appears in screen 1100, and the buttons that link the user to the provisions of the Act. This is the start of the most current version of the Social Security Act preferably. From this screen, provisions of the Act can be accessed. By accessing the Table of Provisions box, the Table of Provisions menu can be accessed. FIG. 12 shows the Table of Provisions screen 1200, and illustrates how a specific provision, say Section 4, can be accessed again using links 1206. Different sections of the Act (e.g. ss 3, 4 and 6A) may be accessed as well using corresponding jump links. Again, location information 1202 is provided in the upper portion of the screen. A return button 1204 is also provided that provides access back to the beginning of the Act.

FIG. 13 shows screen 1300 containing the Time Base Toolbar 1302, which preferably provides eight buttons for accessing time based information. This Toolbar 1302 is not a feature of Folio Views, but is a designed addition added to Folio Views by the first embodiment. It is made possible by the way in which the publication data is coded. The Section Information button 1304 takes the user to an overview of information. The Previous, Next and All buttons 1306 allows the user to have access to the previous, next and all versions of the relevant section. The Subject, Jurisdiction and Related Info buttons 1308 allow the user to view and access sections dealing with a similar subject, or similar sections in other jurisdictions, or related information such as cases and articles on or about the section. This Toolbar 1302 allows a user to cycle through previous and subsequent versions of sections and as shown in screens in FIGS. 14 and 15 to refer to the text of sections amending the section. As well, the user can also call to the screen all versions of the section as one view (or display) using the "ALL" button.

FIG. 14 illustrates a screen 1400 which appears when the user selects the Section Information button 1402 (button 1304 in FIG. 13). The resulting popup screen illustrates the time period or date range 1404 covered by this version of section 4. It also indicates the Year and Number jump link 1406 to text of the amending act which created this version of section 4.

FIG. 15 illustrates a screen 1500 which appears when the user selects the previous button 1502 (not shown—it is located behind the popup screen), which corresponds to

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previous button 1306 of FIG. 13. This shows an earlier version of section 4 that the user can access by using the previous button 1502. The pop-up screen indicates that this version covers a different time span than that shown in FIG. 14.

The screen shots in FIGS. 7 to 15 display a step-through or navigation-based way of locating information. There is also the more direct approach of searching for terms using text retrieval. The screen shots in FIGS. 16 and 17 illustrate such searching provided by the first embodiment. Screen 1600 shown in FIG. 16 provides a customised search template 1602 that includes a time base option allowing a user to search for versions of a section, for example. Screen 1700 shown in FIG. 17 illustrates a customised search template 1702 for case law which includes a time base option connecting cases to legislation at a particular date, for example. Again, the ability to relate such to time and then to mix and match types of information from different sources (jurisdictions) is a feature provided by the coding technique used for the data and not the Folio Views software used to deliver the data to the end user.

Second Embodiment

The second embodiment stores all the information in a single repository which is marked up in SGML or XML. The information is divided in that repository into suitable pieces or blocks of text (as described in the first embodiment) and any relevant markup marks up a whole suitable piece or block of text by (a) choosing suitable pieces or blocks of text, and (b) demanding that relevant markup belongs to a whole suitable piece or block of text, the following becomes possible. A relational database consisting of records consisting of fields can be created with one and only one record per suitable piece or block of text where the actual text of each suitable piece or block of text is the content of one field of the above record and where each item of the markup is assigned its own field in the above record.

For example, a version of Section 6 of the Income Tax Assessment Act (ITAA) 1936 may be stored as a record in the above relational database. The first field of that record contains the actual text of that version of Section 6. The next field identifies it as Section 6 of the ITAA, the next field gives the date this version came into being, the next field contains the section of the amending act that created this particular version, the next field contains the day this version became superseded, another field contains the subject(s) this version addresses, another field contains the case(s) that have addressed this version of section 6 and so on. Storing the data in this way allows multidimensional database techniques to be applied to the data.

An XML DTD for implementing the second embodiment is set forth in Table E. It will be apparent to one skilled in the art that the second embodiment may be readily implemented in view of the foregoing description of the first embodiment, which is not repeated here for the purpose of brevity, and in view of the accompanying DTD set out in Table E.

The foregoing only describes a small number of embodiments of the invention, and modifications and changes apparent to those skilled in the art can be made thereto without departing from the scope and spirit of the invention. For example, the embodiments of the invention have been described with reference to SGML. The embodiments may alternatively be practiced with the extensible markup language (XML) as well. Also, the embodiments may alternatively be practiced with a Style Sheet Mechanism (SSM) instead of, or in addition to, one or more DTDs.

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Table
APPENDIX A

Example Research

SOCIAL SECURITY ACT 1991 No 46

Updated as at 9 August 1996

5 **A 1. Amendments to Section at 9/8/96**

S. 4 am. Nos. 74, 116 and 194, 1991; No. 81, 1992;
No. 36, 1993; Nos. 55, 63 and 184, 1994; Nos.
104 and 105, 1995

A 2. Amendments to Section at 10/7/95

10 S. 4 am. Nos. 74, 116 and 194, 1991; No. 81,
1992; No. 36, 1993; Nos. 55, 63 and 184,
1994

B. Commencement Information for Act No 105 of 1995 contained in Reprint

Social Security (Non-Budget Measures) Legislation Amendment Act 1995

15	Number	Year	Date of Assent	Commencement
	105	1995	29 Sept 1995	Subdiv. A of Div. 2 of Part 2 (s. 4): 1 July 1993 Ss. 8 and 9: 1 July 1995 S. 10: 1 Apr 1993 Div. 5 of Part 2 (ss. 12 and 13): 20 Sept 1994 (ze)
20			Ss. 17 (c), (d) and 18: 1 Jan 1996 Div. 15 of Part 2 (s. 37): 29 Nov 1993 Div. 18 of Part 2 (ss. 41-48): 20 Mar 1995	
25				S. 49 (a): 12 Mar 1992 S. 49 (b): 1 July 1992 S. 49 (c): 28 Jan 1993 S. 49 (d): 1 Mar 1993 S. 49 (e): 24 Dec 1993
30				S. 49 (f): 1 Jan 1994 Remainder: Royal Assent

C 1. Text of Section at 9/8/96**bold text indicates amendments made by N0 105 of 1995.**

35 SECT 4

Family relationships definitions-couples

4. (1) (1) In this Act, unless the contrary intention appears:

"approved respite care" has the meaning given by subsection (9):

Note: a prohibited relationship for the purposes of section 23B of the Marriage Act 1961 is a relationship between a person and:

- . an ancestor of the person; or
- . a descendant of the person; or
- 5 . a brother or sister of the person (whether of the whole blood or the part-blood).

Member of a couple-criteria for forming opinion about relationship

4 (3) In forming an opinion about the relationship between 2 people for the purposes of paragraph (2) (a) or subparagraph (2) (b) (iii), the Secretary is to have regard to all the circumstances of the relationship including, in particular, the following matters:

(a) the financial aspects of the relationship, including:

(i) any joint ownership of real estate or other major assets and any joint liabilities; and

(ii) any significant pooling of financial resources especially in relation to major financial commitments; and

(iii) any legal obligations owed by one person in respect of the other person; and

(iv) the basis of any sharing of day-to-day household expenses;

(b) the nature of the household, including:

(i) any joint responsibility for providing care or support of children; and

(ii) the living arrangements of the people; and

(iii) the basis on which responsibility for housework is distributed;

(c) the social aspects of the relationship, including:

(i) whether the people hold themselves out as married to each other; and

(ii) the assessment of friends and regular associates of the people about the nature of their relationship; and

(iii) the basis on which the people make plans for, or engage in, joint social activities;

(d) any sexual relationship between the people;

(e) the nature of the people's commitment to each other, including:

(i) the length of the relationship; and

(ii) the nature of any companionship and emotional support that the people provide to each other; and

(iii) whether the people consider that the relationship is likely to continue indefinitely; and

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(iv) whether the people see their relationship as a marriage-like relationship.

4 (3A) The Secretary must not form the opinion that the relationship between a person and his or her partner is a marriage-like relationship if the person is living separately and apart from the partner on a permanent or indefinite basis. [Subsection added]

C 2. Text of Section at 10/7/95 prior

SECT 4

Family relationships definitions - couples

10 4. SECT 4

Family relationships definitions-couples

4. (1) In this Act, unless the contrary intention appears:

"approved respite care" has the meaning given by subsection (9);

"armed services widow" means a woman who was the partner of:

15 (a) a person who was a veteran for the purposes of any provisions of the Veterans' Entitlements Act; or

(b) a person who was a member of the forces for the purposes of Part IV of that Act; or

(c) a person who was a member of a peacekeeping force for the purposes of Part IV of that Act;

immediately before the death of the person;

"armed services widower" means a man who was the partner of:

20 (a) a person who was a veteran for the purposes of any provisions of the Veterans' Entitlements Act; or

(b) a person who was a member of the Forces for the purposes of Part IV of that Act; or

(c) a person who was a member of a Peacekeeping Force for the purposes of Part IV of that Act;

immediately before the death of the person;

"illness separated couple" has the meaning given by subsection (7);

25 "member of a couple" has the meaning given by subsections (2), (3), and (6);

"partner", in relation to a person who is a member of a couple, means the other member of the couple;

"partnered" has the meaning given by subsection (11);

"partnered (partner getting benefit)" has the meaning given by subsection (11);

"partnered (partner getting neither pension nor benefit)" has the meaning given by subsection (11);

30 "partnered (partner getting pension)" has the meaning given by subsection (11);

"partnered (partner getting pension or benefit)" has the meaning given by subsection (11);

"partnered (partner in gaol)" has the meaning given by subsection (11);

"respite care couple" has the meaning given by subsection (8).

35 Member of a couple-general

4 (2) Subject to subsection (3), a person is a member of a couple for the purposes of this Act if:

(a) the person is legally married to another person and is not, in the Secretary's opinion (formed as mentioned in subsection (3)), living separately and apart from the other person on a permanent basis; or

SECRET

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(b) all of the following conditions are met:

(i) the person with a person of the opposite sex (in this paragraph called the "partner");

(ii) the person is not legally married to the partner;

5 (iii) the relationship between the person and the partner is, in the Secretary's opinion (formed as mentioned in subsections (3)), a marriage-like relationship;

(iv) both the person and the partner are over the age of consent applicable in the State or Territory in which they live;

(v) the person and the partner are not within a prohibited relationship for the purposes of section 23B of the Marriage Act 1961.

Note: a prohibited relationship for the purposes of section 23B of the Marriage Act 1961 is a relationship between a person and:

. an ancestor of the person; or

. a descendant of the person; or

15 . a brother or sister of the person (whether of the whole blood or the part-blood).

Member of a couple-criteria for forming opinion about relationship

4 (3) In forming an opinion about the relationship between 2 people for the purposes of paragraph (2) (a) or subparagraph (2) (b) (iii), the Secretary is to have regard to all the circumstances of the relationship including, in particular, the following matters:

(a) the financial aspects of the relationship, including:

(i) any joint ownership of real estate or other major assets and any joint liabilities; and

25 (ii) any significant pooling of financial resources especially in relation to major financial commitments; and

(iii) any legal obligations owed by one person in respect of the other person; and

(iv) the basis of any sharing of day-to-day household expenses;

(b) the nature of the household, including:

30 (i) any joint responsibility for providing care or support of children; and

(ii) the living arrangements of the people; and

(iii) the basis on which responsibility for housework is distributed;

35 (c) the social aspects of the relationship, including:

(i) whether the people hold themselves out as married to each other; and

(ii) the assessment of friends and regular associates of the

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people about the nature of their relationship; and

(iii) the basis on which the people make plans for, or engage in, joint social activities;

(d) any sexual relationship between the people;

5 (e) the nature of the people's commitment to each other, including:

(i) the length of the relationship; and

(ii) the nature of any companionship and emotional support that the people provide to each other; and

10 (iii) whether the people consider that the relationship is likely to continue indefinitely; and

(iv) whether the people see their relationship as a marriage-like relationship.

D. Amending Act 1995 No 105 amending Section 14

15 SOCIAL SECURITY (NON-BUDGET MEASURES) LEGISLATION AMENDMENT

ACT 1995 No. 105

of 1995 - SECT 14

Family relationships definitions-couples

20 SECT

14. Section 4 of the Principal Act is amended:

(a) by inserting in the definition of "member of a couple" in subsection (1) ", (3A)" after "(3)";

(b) by inserting in paragraph (2)(a) "or indefinite" after "permanent";

25 (c) by omitting from subparagraph (2)(b)(i) "is living" and substituting "has a relationship";

(d) by omitting from subparagraph (2)(b)(iii) "subsection (3)" and substituting "subsections (3) and (3A)";

(e) by inserting after subsection (3):

30 "(3A) The Secretary must not form the opinion that the relationship between a person and his or her partner is a marriage-like relationship if the person is living separately and apart from the partner on a permanent or indefinite basis."

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Table
APPENDIX B

CODING - Document Type definitions (dtds)

5

ACT.DTD

```

<!-- *****
Document Type Definition for a set of acts
Typical invocation :
<!DOCTYPE acts PUBLIC "-//SGMLSE//DTD 1.0 Acts//EN" >
Copyright Aunty Abha's Electronic Publishing Pty. Ltd. 1996, 1997
***** -->
<!ENTITY % CONSOL "IGNORE">
<!-- ***** Include common element and entity definitions ***** -->
<!ENTITY % common
PUBLIC "-//SGMLSE//ELEMENTS 2.0 Common Elements//EN" >
%common;
<!-- ***** End common element and entity definitions ***** -->
<!ELEMENT acts -- (title, header?, act+)
>
<!ENTITY % act PUBLIC "-//SGMLSE//DTD 1.0 Act//EN" >
%act;

```

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15

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ACTS.DTD

```

<!-- *****
Document Type Definition for a set of acts
Typical invocation :
<!DOCTYPE acts PUBLIC "-//SGMLSE//DTD 1.0 Acts//EN" >
Copyright Aunty Abha's Electronic Publishing Pty. Ltd. 1996, 1997
***** -->
<!ENTITY % CONSOL "IGNORE">
<!-- ***** Include common element and entity definitions ***** -->
<!ENTITY % common
PUBLIC "-//SGMLSE//ELEMENTS 2.0 Common Elements//EN" >
%common;
<!-- ***** End common element and entity definitions ***** -->
<!ELEMENT acts -- (title, header?, act+)

```

30

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]]>

```

<!ENTITY % status
    "insert-date  NUMBER  #IMPLIED -- insert date --
    insert-leg   IDREF   #IMPLIED -- link to the inserting legislation --
    repeal-date  NUMBER  #IMPLIED -- repeal date --
    repeal-leg   IDREF   #IMPLIED -- link to the repealing legislation --
    amend-date   NUMBER  #IMPLIED -- amended date --
    amend-leg    IDREF   #IMPLIED -- link to the amending legislation --
    "
>

<!ENTITY % reqid  "id      ID      #REQUIRED"
    -- required id --
>
<!ENTITY % reqlbl "lbl     CDATA   #REQUIRED"
    -- required label --
>

<!ENTITY % emph   "bold | ital"
    -- emphasised text --
>
<!ENTITY % refs   "xref | rngref | tempref | noteref"
    -- references --
>
<!ENTITY % inline "quote | ileqn | %emph; | %refs; | super | subscr"
    -- inline text elements --
>
<!ENTITY % text   "#PCDATA | %inline;"
    -- inline text elements plus character data --
>
<!ENTITY % ref-cont "#PCDATA"
    -- content of references --
>
<!ENTITY % plevel  "p | dpeqn | tblblk | list | blockquote | form"
    -- paragraph level (block) elements --
>
<!ENTITY % tblcon  "p | dpeqn | list"

```

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```

-- content of table cells --
>

<!ENTITY % para-cont      "(%plevel;)+"
```

5 -- content of long-title or section level elements --

```

>

<!ENTITY % unstruct-cont  "((%plevel;)|article|chapter|part|notes)*">

10  <!ENTITY % subject      "subject      NAMES      #IMPLIED"
      -- optional subject --
>
<!-- ***** End Parameter Entities ***** -->

15  <!-- ***** Include Maths and Table elements ***** -->

<!ENTITY % atimath PUBLIC "-//SGMLSE//ELEMENTS Math Equation Structures//EN">
%atimath;

20  <!ENTITY % atitbl PUBLIC "-//SGMLSE//ELEMENTS Table Structures//EN">
%atitbl;

<!-- ***** End Maths and Table elements ***** -->

25  <!-- Main elements -->

<!ELEMENT part - - (title, (%plevel;)*, (chapter+|division+|section+)*, notes?)
>
<!ATTLIST part %reqid;
30          %reqlbl;
          %status;
          %subject;
          %consol;
>

35  <!ELEMENT order - - (title, (division|section|part|schedule)+)
      -- in numregs --
>

```

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```

<!ATTLIST order %reqid;
    %reqlbl;
    %status;
    %subject;
5    %consol;
>

<!ELEMENT division - - (title, (sub-division+|section+))
-- in numregs --
10 >
<!ATTLIST division %reqid;
    %reqlbl;
    %status;
    %subject;
15    %consol;
>

<!ELEMENT sub-division - - (title, section+)
-- in numregs --
20 >
<!ATTLIST sub-division %reqid;
    %reqlbl;
    %status;
    %subject;
25    %consol;
>

<!ELEMENT chapter - - (title, (%plevel;)*, (part+|section+|article+)?)
-- part+ and section+ for numacts --
30 >
<!ATTLIST chapter %reqid;
    %reqlbl;
    %status;
    %subject;
35    %consol;
>

<!ELEMENT article - - (title, (%plevel)*, notes?)

```


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```

<!ELEMENT xref    -- (%ref-cont;)+
    -- cross reference to a single target point --
>
<!ATTLIST xref    ref    IDREF    #REQUIRED
5 >
<!ELEMENT noteref - O EMPTY
    -- cross reference to a note --
>
<!ATTLIST noteref ref    IDREF    #REQUIRED
10 >
<!ELEMENT rngref  -- (%ref-cont;)+
    -- cross reference to a sequential range of target points --
>
<!ATTLIST rngref  startref NAME    #REQUIRED
15         endref   NAME    #REQUIRED
>
<!ELEMENT tempref -- (%ref-cont;)+
    -- cross reference to a single target point where the idstring is unknown --
>
20 <!ELEMENT ileqn  -- (f)
    -- inline equation --
>
<!ELEMENT super   -- (%text;)+ -(super,subscr)
    -- superscript --
25 >
<!ELEMENT subscr  -- (%text;)+ -(super,subscr)
    -- subscript --
>
<!ELEMENT quote   -- (%text;)+
30 >
<!ELEMENT bold    -- (%text;)+ -(bold)
    -- text set in bold which is not a title or a label --
>
<!ELEMENT ital    -- (%text;)+ -(ital)
35 -- text set in italic which is not a title or a label --
>
<!ELEMENT altered - O EMPTY>
<!ATTLIST altered by CDATA #REQUIRED>

```


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Table
APPENDIX C

6

Relational Database Specifications

5 **TABLE OF CONTENTS**

Database Tables Entry Procedure

[A] GENERAL

10

- [A 01] Introduction**
- [A 02] General Purpose and Structure of the Database**
- [A 03] General Note about Dates Required for Fields in Database Tables**

15

[B] MASTER TABLE

- [B 01] ID FIELD**
- [B 02] Date of Assent/Date of Notification Field**
- [B 03] Short Title Field**
- 20 **[B 04] Date of Commencement Field**
- [B 04.1] Other forms of commencement or notification**
- [B 05] Date of Expiry Field**
- [B 06] Type Field**
- [B 07] Reprint No Field**
- 25 **[B 08] Reprint Date Field**

[C] TEXTBLOCK TABLE

- [C 01] When the should it be used?**
- 30 **[C 02] ID Field**
- [C 03] Textblock ID1**
- [C 04] Textblock ID2**
- [C 05] Date of Commencement Field**
- [C 06] Date of Expiry Field**

35

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COMMONWEALTH PROJECT

CHAPTER XX - Database Tables Entry Procedure

[A] GENERAL

5

[A 01] Introduction

- This Chapter is divided into three topics;

[A] This General topic,

[B] The Master Table of the Data Base; and

10 [C] The Textblock Table of the Data Base.

- All text like this in 10pt Arial font size is "explanatory text and notes" on the data base.
- All text in Courier 9pt font size with a rule on the left hand side is the text used for examples, the text is taken from the Commonwealth data where possible to make it look like the real thing, however, some examples have been created for the purposes of explanation and do not exist in the data itself.
- References in capitals to ACT(S) or REGULATION(S) are references to the whole Acts or Regulations. The word regulation when written with a lower case "r" will refer to a numbered regulation (eg: regulation 2). **Note:** this does not apply to the text of examples which have been left as they appear in the data.
- The word Section written with a capital "S" will refer to the numbered section of an ACT (eg: Section 2). **Note:** this does not apply to the text of examples which have been left as they appear in the data.
- The word Part written with a capital "P" will refer to the means of dividing an ACT known as a Part (eg: Part 2 or Part II). **Note:** this does not apply to the text of examples which have been left as they appear in the data.
- **Note:** the reference to Sections in Commonwealth ACTS and regulations in Commonwealth REGULATIONS is by way of the lowest piece of text first, eg: 8(8)(a) would be written "paragraph 8(8)(a)" not "Section 8(8)(a)".

30 **Note:** Fields are out of database structure order in the examples because they appear at different places in the legislation to the structure used in the database tables.

[A 02] General Purpose and Structure of the Database

Purpose

35 To provide a means of managing, monitoring and checking the content of the Commonwealth Legislation Consolidation.

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To allow the time based (versioning) capacity of the DTD and SGML coding being under taken to be realised.

Basic Structure

5 The database is to consist of two tables.

These Tables will be known as MASTER and TEXTBLOCK.

The specific purpose of each Table will be as follows:-

MASTER will focus on fields that collect data about an ACT or REGULATION as a whole.

TEXTBLOCK will focus on specific sub-elements of the whole of an ACT or REGULATION.

10

[A 03] General Note about Dates Required for Fields in Database Tables

Dates in the Database will be used primarily to identify two things:

- the beginning of a whole or part of an ACT or REGULATION, or
- the end of the whole or part of an ACT or REGULATION

15

Entries for dates will all be in the dd/mm/yy formula.

There are 3 ways dates will be appear in the legislation:

- *specific* - are stated in the legislation itself (for example, Date of Assent)
- 20 • *to be advised* - are to be published or advised elsewhere (for example, proclaimed in Gazette)
- *conditional* - are based on something else happening (for example, the commencement of another ACT or REGULATION, the creation of or termination of an organisation, the happening of an event)

25

[B] MASTER TABLE

[B 01] ID FIELD

This is the most important field in the database as it ties all the remaining fields and their
30 information together.

For the example used here, that is, the Social Security Act this will be **Act-19910046**.

This is arrived at by combining,

- 35 (i) the *type of legislation*, in this case an ACT - see **(a)** below, then
- (ii) the *year of enactment/creation*, in this case 1991 - see **(b)** below, and finally,
- (iii) the *ACT'S Number* - see **(c)** below.

The entry for REGULATION No 36,1990 being the entry for the principal REGULATIONS, that is the Cash Transactions Reports Regulations, is the place to look and the second column shows the date of notification as 27 Feb 1990 (see (e) below).

5 *1* The Cash Transaction Reports Regulations (in force under the Cash Transaction Reports Act 1988) as shown in this reprint comprise Statutory Rules 1990 No. 36 amended as indicated in the Tables below.

Table of Statutory Rules

Year and number in Gazette	Date of notification	Date of commencement	Application, saving or transitional provisions
1990 No. 36	(e)27 Feb 1990	27 Feb 1990	1990

[B 03]Short Title Field

This usually appears in Section 1 of an ACT or regulation 1 of a REGULATION. This is the best place to take the name from as it is the legislated/official way that the ACT, REGULATION etc., is to be referred to etc. See (f) below.

The name should be entered in full (no abbreviations). You should include the year even though it is part of the ID and also the words ACT or REGULATION. This will firstly, provide a cross check as normally these should match. It will also indicate those ACTS or REGULATIONS where the Short Title Year is different to the Year and Number in the ID field.

```

30  $$A
    $$T
    SOCIAL SECURITY ACT 1991 - SECT 1<
    Short title

    $$T

35  $$NSECT
    1. This Act may be cited as the (f)Social Security Act 1991.*1*
    $$$
    
```

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[B 04] Date of Commencement Field

This information usually appears in Section 2 for an ACT and regulation 2 for a REGULATION.

5

This is the best place to take the date of commencement from as here it is part of the legislation/the law and therefore always correct (even if its wrong). If taken from the Table of Acts or Table of Regulations an error would not be correct even if **not** made by us because technically; Tables, Title Pages and even side/margin notes are not

10

See **(g)** below for an example.

```

15  $$$
    SOCIAL SECURITY ACT 1991 - SECT 2<
    Commencement

    $$$
20  $$NSECT
    2. This Act commences on (g) 1 July 1991.

    $$$
    $$$

```

[B 04.1] Other forms of commencement or notification

The example given at **(g)** above is a simple form of commencement in that one date is stated in Section 2.

There are other forms of commencement as follows:-

30

• ACTS or REGULATIONS *where no date of commencement is specified* enacted on or before 31/12/1937 (that is, there is no Section 2 and no other section dealing with commencement) commence on the day on which the ACT was assented to for ACTS (for example, the Acts Interpretation Act 1901 assented to on 12/7/1901). These Acts require **no** entry

35

• ACTS or REGULATIONS *where no date of commencement is specified* enacted on or after 1/1/1938 (that is, there is no Section 2 and no other section dealing with commencement) then the

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Act by default commences on 28th day after the Date of Assent. These Acts **do** require an entry in the MASTER TABLE as the Date of Commencement and Date of Assent are not the same.

5 • ACTS or REGULATIONS where various Parts, Sections, regulations etc., commence on different dates or on dates to be proclaimed or notified in Gazette.

10 • ACTS or REGULATIONS where various Parts, Sections, regulations etc., commence the commencement of another ACT, REGULATION or Part or Section of another ACT or REGULATION etc.

Note: With respect to the calculation of time (as for example, in the case of commencement 28 days after assent) Section 36 of the Acts Interpretation Act affects how this is done. Section 36 provides:

15 • Where in an ACT any period of time, dating from a given day, act, or event, is prescribed or allowed for any purpose, the time shall, unless the contrary intention appears, be reckoned exclusive of such day or of the day of such act or event.

20 • Where the last day of any period prescribed or allowed by an ACT for the doing of anything falls on a Saturday, on a Sunday or on a day which is a public holiday or a bank holiday in the place in which the thing is to be or may be done, the thing may be done on the first day following which is not a Saturday, a Sunday or a public holiday or bank holiday in that place.

25 The above will be handled in Australia with respect of those ACTS or REGULATIONS to which this applies.

[B 05]Date of Expiry Field

30 This is the opposite of commencement; that is, it indicates when the whole of an ACT or REGULATION or some Part, Section or regulation in an ACT or REGULATION ceases to have effect.

Note: because the expiry is provided for in the ACT or REGULATION itself, this is different to a repeal. The effect is however, the same.

35 Sections or Regulations relevant to this field are headed "Sunset clause" or "Sunset provision" see **(h)** below.

Note: the use of the words "unless sooner repealed" in the examples *below*. This means entries will need to be checked or reviewed to ensure that ACT or REGULATION has not been sooner repealed.

- 5 The date or timing of expiry is indicated/expressed in a few different ways:
 - by a specific date , see **(i)** *below*.
 - by a period of years, see **(j)** *below*.

- 10 • Examples of expiry of the whole ACT by a specific date.

AUSTRALIAN MEAT AND LIVE-STOCK (QUOTAS) ACT 1990 - Updated as at
 18 July 1995

15 SECT 9
 Sunset clause **(h)**

9. This Act, unless sooner repealed, shall cease to be in force at the
(i)end of 30 June 1998.

- 20 **Note:** the example *above* uses the words "cease to be in force" and the one *below* the words "ceases to have effect". The result is still the same for our purpose.

MEAT AND LIVE -STOCK INDUSTRY ACT 1995 No. 67 of 1995 - Assented
 to 30 June 1995

25 SECT 227
 Sunset clause

227. This Act, unless sooner repealed, ceases to have effect at
 the end of 30 June 1998.

- 30 • Example of expiry of Part, Division, Subdivision or Section of ACT after a specified period of years.

35 NATIVE TITLE ACT 1993
 Updated as at 30 June 1995

SECT 207